

**IN THE UNITED STATES DISTRICT COURT  
FOR THE SOUTHERN DISTRICT OF OHIO  
EASTERN DIVISION**

**OHIO COAL ASSOCIATION**, et al.,

**v.**

Case No. 2:14-cv-2646

**THOMAS E. PEREZ**, et al.,

Defendants.

**and**

**MURRAY ENERGY CORPORATION**, Case No. 2:15-cv-448  
et al.,

Plaintiffs,

Judge Graham

Magistrate Judge Deavers

**v.**

**THOMAS E. PEREZ**, et al.,

Defendants.

**ADMINISTRATIVE RECORD**

**PAGES 00239 – 00465**

1 MR. ZEUTENHORST: I see. I see.

2 MR. BARNES: -- that you have there. It's a  
3 mistake, I believe.

4 MR. ZEUTENHORST: Okay, thank you. And, you  
5 reference --

6 MR. BARNES: I believe the other comment may  
7 have been for the whole industry --

8 MR. ZEUTENHORST: Right. Okay, thank you.

9 And, for the record your reference to Part 100,  
10 I assume you're talking about Section 100.3 where the criteria  
11 are listed for determining civil penalty amounts; regular  
12 assessments, is that correct?

13 MR. BARNES: That's correct.

14 MR. ZEUTENHORST: Okay, thank you. Thank you  
15 very much.

16 Next, we have Mr. Dan Larkin, representing the  
17 Colorado Mining Association.

18 MR. DAN LARKIN: I will be doing this without  
19 my attorney.

20 MR. ZEUTENHORST: The record will show that  
21 Mr. Larkin is speaking without attorney, without counsel  
22 present.

23 MR. LARKIN: My name is Dan Larkin,  
24 L-A-R-K-I-N, and I'm the Chairman of the Metal/Non-Metal  
25 Safety Committee for the Colorado Mining Association and am

1 here today to represent the Colorado Mining Association in its  
2 entirety.

3 The Colorado Mining Association was established  
4 in 1976, as a trade association, whose membership includes  
5 roughly 130 mining companies, or companies related to mining,  
6 and over 1200 individual members. We represent people who are  
7 involved in the extraction and processing of metals, coal,  
8 oil, oil shale, and other industrial minerals.

9 We submitted comments on August 28th, in  
10 written format on the patterns, but would like to hit on some  
11 of the high points of those today.

12 First of all, the Colorado Mining Association  
13 does not feel that the unwarrantable provisions are necessary  
14 to ensure the health and safety of the miners in this country.  
15 We've been some 11 or 12 years without the establishment of  
16 the regulations for unwarrantable failure, and yet during that  
17 time, the accident records and the health records of the  
18 mining industry in this country have continued to improve. We  
19 think that unwarrantable failure would be redundant, when put  
20 together with the punitive enforcement regulations that are  
21 already in place.

22 Be that as it may, we would like to comment on  
23 a couple of specific areas.

24 MR. ZEUTENHORST: You're speaking about  
25 pattern, rather than unwarrantable, right?

1 MR. LARKIN: I'm sorry, patterns. Did I say  
2 "unwarrantable"?

3 (Whereupon, an off-the-record discussion was  
4 then held.)

5 MR. LARKIN: The Colorado Mining Association  
6 reminds the Secretary that Congress intends the sanctions  
7 associated with a pattern to be applied only to the few most  
8 recalcitrant operators who repeatedly ignore mandatory health  
9 and safety standards.

10 Two, in determining whether a pattern of  
11 violations exists, the final rule must look at a mine's  
12 significant and substantial violation record, only from the  
13 date of promulgation of this final rule, forward. Violations  
14 issued before the final rule was effective, may not be used  
15 for pattern criteria, since operators will have previously  
16 made their decisions whether to contest violations issued as  
17 S & S, without knowing what impact these violations might have  
18 on the pattern of violations determination.

19 Third, CMA recommends that MSHA include the  
20 definition of the term "significant and substantial" as  
21 provided by the Commission in Secretary of Labor, MSHA v.  
22 National Gypsum Company. According to National Gypsum a  
23 violation is significant and substantial if there is a  
24 reasonable likelihood of the occurrence of a reasonably  
25 serious injury, illness, or death.

1 Fourth, CMA also recommends that the definition  
2 of "unwarrantable failure", as provided by the Commission, in  
3 Secretary v. Emery Mining be included in the regulation. That  
4 is, unwarrantable failure means "aggravated conduct  
5 constituting more than ordinary negligence by a mine operator  
6 in relation to a violation of the Act".

7 Because the sanctions associated with a pattern  
8 of violations notice are severe, the procedures leading to the  
9 issuance of a notice should be scrupulously fair and should  
10 provide all parties with ample opportunity to tell their  
11 story. In particular, MSHA should provide a specific  
12 opportunity for a hearing before the pattern of violations  
13 notice is issued, but after the District Manager's conference.  
14 The opportunity for a hearing is particularly important  
15 because the review provisions of Section 105 of the 1977 Act  
16 do not appear to be available to an operator until a  
17 withdrawal order is issued, subsequent to the pattern notice.

18 CMA supports the concept of partial inspections  
19 of a mine being combined to accomplish a total mine inspection  
20 when removing a mine from a pattern of violations status.

21 CMA also supports the language in 104.3(b) of  
22 the proposed rule which provides that only final citations and  
23 orders shall be considered for a pattern.

24 In closing, the Colorado Mining Association  
25 would like to state that its members have been involved in the

1 preparation of comments by the American Mining Congress, the  
2 National Coal Association, and the BCOA, and we support their  
3 comments in their entirety.

4 Thank you.

5 MR. ZEUTENHORST: Thank you, Mr. Larkin. I  
6 have no questions.

7 At this time, I would like to ask if there is  
8 anyone else in the audience today who would like to make a  
9 statement?

10 There being none, once again on behalf of  
11 Assistant Secretary Tattersall and Secretary Dole, I want to  
12 thank you for coming today; thanking especially those of you  
13 who presented testimony.

14 This is a particularly difficult rule making,  
15 and we looking forward to your continued participation as the  
16 record closes on December 8th.

17 This hearing is adjourned.

18 (Whereupon, the hearing was adjourned on  
19 November 8, 1989.)  
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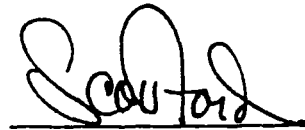
CERTIFICATE

This is to certify that the attached proceedings before:  
UNITED STATES DEPARTMENT OF LABOR

In the Matter of: PUBLIC HEARING ON  
PROPOSED RULES FOR PATTERN OF VIOLATIONS

At: Denver, Colorado Date: November 8, 1989

were held as herein appears, and that this is the original  
transcript thereof for the file of the Department.



Official Reporter  
Federal Reporting Service, Inc.  
17454 E. Asbury Place  
Aurora, Colorado 80013

**DEPARTMENT OF LABOR****Mine Safety and Health Administration****30 CFR Part 104****Pattern of Violations**

**AGENCY:** Mine Safety and Health Administration (MSHA), Department of Labor.

**ACTION:** Proposed rule.

**SUMMARY:** This proposed rule sets forth criteria for identifying mines which have a pattern of violations of mandatory health or safety standards which are of such nature as could have significantly and substantially contributed to the cause and effect of mine health or safety hazards pursuant to § 104(e) of the Federal Mine Safety and Health Act of 1977. Under section 104(e), the Secretary of Labor is directed to make such rules as he deems necessary to establish such criteria. This proposed rule also sets forth the procedures MSHA would follow to issue a notice to an operator that such a pattern exists at its mine.

**DATES:** Comments must be received by October 14, 1980.

**ADDRESS:** Send comments to the Department of Labor, Mine Safety and Health Administration, Office of Standards, Regulations and Variances, Room 631, Ballston Tower No. 3, 4015 Wilson Boulevard, Arlington, Virginia 22203.

**FOR FURTHER INFORMATION CONTACT:** Frank A. White, Mine Safety and Health Administration, Office of Standards, Regulations and Variances, 4015 Wilson Boulevard, Arlington, Virginia 22203, Telephone (703) 235-1910.

**SUPPLEMENTARY INFORMATION:****Rulemaking Authority**

Section 104(e) of the Federal Mine Safety and Health Act of 1977 directs the Secretary of Labor to issue a notice to an operator if it has a pattern of violations of mandatory health or safety standards in coal or other mine which are of such nature as could have significantly and substantially contributed to the cause and effect of coal or other mine health or safety hazards (hereinafter "pattern of violations"). Section 104(e)(4) directs the Secretary of Labor to make such rules as he deems necessary to establish criteria for determining when such a pattern of violations exists.

Section 508 of the Act authorizes the Secretary of Labor to issue such regulations as he "deems appropriate to carry out any provision of this Act."

Pursuant to sections 104(e) and 508, the Secretary of Labor is commencing

rulemaking by the publication of this proposed rule and a solicitation for public comment.

**Legislative History and Purpose**

When Congress strengthened existing mine safety and health protection by enacting the Federal Mine Safety and Health Act of 1977, Pub. L. 95-173 as amended by Pub. L. 95-164 (Act), it was particularly concerned about the problem of the mine operator who has a history of persistent violations of mandatory health and safety standards. The enforcement mechanisms of the Mine Act's predecessor legislation (the Federal Coal Mine Health and Safety Act of 1969 and the Metal and Nonmetallic Mine Safety Act of 1966) had not always been effective in dealing with these situations. Correcting the larger underlying problems which were evidenced by recurrent individual violations was a major concern of Congress when it passed the new legislation. As one means to address these problems, Congress added a new section 104(e), which authorized the Department of Labor to deal with mines that have developed a "pattern of violations." In adding the pattern of violations provision Congress explicitly expressed its intent in the Senate Committee Report, which states:

The Committee's intention is to provide an effective enforcement tool to protect miners when the operator demonstrates his disregard for the health and safety of miners through an established pattern of violations. S. Rep. No. 181, 95th Cong., 1st Sess. 32 (1977).

The Senate Committee recognized that numerous mining disasters in both the coal and the metal/nonmetal industries demonstrated an inadequacy in existing law and existing mine safety and health programs.

The legislative history emphasizes in the committee reports and floor debates that section 104(e) is primarily designed as an enforcement mechanism to be used against serious and repeat offenders, particularly those habitual violators who have not responded to other efforts to bring their mines into compliance with health and safety standards.

Although section 104(e) does not define "pattern of violations," the legislative history gives some general guidance on the kinds of situations to which the provision should apply. The Senate Committee stated its intent that:

A pattern may be established by violations of different standards, as well as by violations of a particular standard. Moreover, while the Committee considers that a pattern is more than an isolated violation, a pattern does not necessarily mean a prescribed number of violations of predetermined

standards nor does it presuppose any element of intent or state of mind of the operator: S. Rep. No. 181, 95th Cong., 1st Sess. 33 (1977).

After setting forth this general guidance, Congress authorized the Secretary of Labor to formulate specific criteria which would be broad enough to encompass the varied mining activities within the Act's coverage. The Secretary was granted wide discretion in establishing these criteria, and Congress further recognized that since the pattern of violations provision was new and still untried, that the criteria might need to be modified as experience with the provision increased.

**Criteria For Determining a Pattern of Violations**

Under the proposed rule, available data which reflect each mine's overall safety and health record during a review period would be compiled from inspection records and other relevant sources. These data are already being used to implement other provisions of the Federal Mine Safety and Health Act and would be adapted to implement section 104(e). Data would be reviewed as often as necessary but no less frequently than once each year. A notice that a pattern of violations exists may be issued whenever circumstances warrant.

Typically, a pattern of violations would be exemplified either by an unusually large number of violations which are of such nature as could have significantly and substantially contributed to the cause and effect of a mine safety or health hazard (hereinafter "significant and substantial violations") and little or no indication of improved compliance after a period of time, or by a worsening trend of significant and substantial violations which indicates a greater than normal risk of either a disaster or individual accidents, injuries or illnesses. Under the proposed rule, the pattern of violations may include violations of many unrelated safety and health standards or it may involve violations of one standard or a few particular categories of safety and health standards (for example, ventilation, roof control, haulage, noise, etc.). In many cases where a pattern of violations would be found to exist, there would be a history of withdrawal orders for significant and substantial violations which have not induced the mine operator to improve safety and health practices.

Congress intended for the criteria to be flexible. Although under the proposed rule a pattern would be based on a mine's record of "significant and

substantial" violations, factors other than the mere number of such violations would be considered. The proposed criteria, therefore, include both quantitative and qualitative factors. The factors set out in the proposed regulation to be considered in applying the criteria would serve as guidelines, but would not prevent MSHA from applying a particular criterion on the basis of other factors. Additionally, depending on the individual situation, the weight given to a particular criterion or factor may vary. The determination that a pattern exists at a particular mine would not be made mechanically, but would be a documented judgment based on the relevant facts and circumstances, including the enforcement history and overall safety and health conditions at the mine. Each determination would be in writing and would set forth the reasoning used to arrive at the determination.

#### Procedures

If a pattern notice is issued to an operator, any subsequent inspection which reveals another significant and substantial violation will result in the issuance of a withdrawal order until the violation is abated. There will be a sequence of withdrawal orders upon the subsequent finding of any significant and substantial violation until a complete inspection of the mine reveals no significant and substantial violation.

Although a pattern of violations notice which is subsequently followed by withdrawal orders would provide a strong incentive for the affected operator to correct an already existing pattern, it is clear that Congress intended for this sanction, insofar as possible, to prevent such a critical situation. Realizing that a pattern of violations will lead to severe consequences, chronic violators would be induced to comply with the spirit as well as the letter of the law. The thrust of the entire Act is to protect the health and safety of miners, which is most effectively accomplished when serious underlying problems are addressed before they reach crisis proportions.

Initial screening procedures, which would include examination of inspection records, would be used to identify mines which may be developing a pattern of violations. Although not required by the proposed rule, MSHA may as a matter of policy, alert affected mine operators that this initial screening has identified that operator's mine as a potential recipient of a pattern notice, which may be issued unless the mine's compliance record is adequately improved before the District Manager makes a

determination to issue a notice that a pattern of violations exists at the mine.

After the initial screening, the criteria would be applied to each of the mines which has been so identified. If this further analysis indicates that a pattern of violations exists at any of the mines under consideration, MSHA would send to the affected operator and miners' representative a letter stating MSHA's intent to issue a pattern notice. This letter of intent would specify the basis for MSHA's proposed action and would give the operator 15 calendar days to review the documents upon which the determination is based, to submit additional information and to submit a written request to confer with the District Manager. If the operator submits such a request, issuance of the pattern notice may be stayed for a reasonable period of time, to be determined by the District Manager, to allow for this informal review and conference.

If the operator does not respond within the allotted time, a pattern notice would be issued promptly. If the operator responds, but the additional information does not indicate a valid reason to defer the issuance of a pattern notice, the notice would be issued. However, if the additional information indicates that a pattern notice should not be issued at this time, the operator would be so notified. In each of these cases, the notification would state the specific reasons and data supporting whatever determination was made.

#### Executive Order 12044

It has been determined that this document does not contain a major proposal requiring the preparation of a regulatory analysis under Executive Order 12044 and the Department of Labor's final guidelines implementing the Executive Order (44 FR 5570, January 28, 1979).

#### Drafting Information

The principal persons responsible for drafting this document are: Vernon R. Denton, James R. Horton, Nancy S. Hyde, and Inga A. Watkins.

Dated: August 11, 1980.

Robert B. Lagather,  
*Assistant Secretary for Mine Safety and Health.*

1. It is proposed to add a new Subchapter Q, Part 104 to Chapter I, Title 30 Code of Federal Regulations as set forth below:

#### SUBCHAPTER Q—PATTERN OF VIOLATIONS

#### PART 104—PATTERN OF VIOLATIONS

Sec.

##### 104.1 Scope and purpose.

##### 104.2 Definitions.

104.3 Identification of mines developing a potential pattern of violations.

104.4 Criteria for determining when a pattern of violations exist.

104.5 Procedures for issuance of notice.

Authority: Secs. 104(e) and 508 of the Federal Mine Safety and Health Act of 1977, Pub. L. 91-173, 83 Stat. 803 as amended by Pub. L. 95-164, 91 Stat. 1301, 1299 (30 U.S.C. 814(e), and 957).

##### § 104.1 Scope and purpose.

This part sets forth the criteria and procedures the Mine Safety and Health Administration (MSHA) will follow in making a determination as to whether there is a pattern of violations of mandatory health or safety standards in a mine which are of such nature as could have significantly and substantially contributed to the cause and effect of mine health or safety hazards (pattern of violations). In making a determination, MSHA will only consider violations occurring after March 8, 1978.

##### § 104.2 Definitions.

As used in this Part:

(a) "MSHA" means the United States Department of Labor, Mine Safety and Health Administration.

(b) "Significant and substantial violations" means violations of mandatory health or safety standards which are of such a nature as could have significantly and substantially contributed to the cause of effect of mine safety or health hazards. Only violations for which a citation or withdrawal order was issued and which have become final before the Federal Mine Safety and Health Review Commission shall be considered in the application of the criteria.

(c) "Pattern of violations" means a pattern of violations of mandatory health or safety standards in a coal or other mine which are of such nature as could have significantly and substantially contributed to the cause and effect of coal or other mine health or safety hazards.

(d) "Review period." A review period for all underground mines shall consist of at least three months. A review period for surface mines shall consist of at least six months.

(e) "Similar size" means classified by MSHA to be within the same category with respect to the annual hours worked at metal/nonmetal mines and the annual tonnage of coal mines as set forth below.

(1) Size of metal/nonmetal mine.

Annual hours worked at mine:

10,000 and under  
Over 10,000 to 20,000  
Over 20,000 to 30,000

Over 30,000 to 60,000  
 Over 60,000 to 100,000  
 Over 100,000 to 200,000  
 Over 200,000 to 300,000  
 Over 300,000 to 500,000  
 Over 500,000 to 700,000  
 Over 700,000 to 1 million  
 Over 1 million  
 (2) Size of coal mine.  
 Annual tonnage of mine:  
 15,000 and under  
 Over 15,000 to 30,000  
 Over 30,000 to 50,000  
 Over 50,000 to 100,000  
 Over 100,000 to 200,000  
 Over 200,000 to 300,000  
 Over 300,000 to 500,000  
 Over 500,000 to 800,000  
 Over 800,000 to 1.1 million  
 Over 1.1 million to 2 million  
 Over 2 million

As used in paragraphs (e) (1) and (2) of this section, the terms "annual tonnage" and "annual hours worked" means tonnage produced and hours worked in the previous calendar year or in the case of a mine opened or owned less than one full calendar year the tonnage and hours worked prorated to an annual basis.

(f) "Similar type" means mines which are classified by MSHA to be within the same category with respect to the type of operation as set forth below:

*Metal and Nonmetallic Types of Operations*

Open pit  
 Other surface (sand, gravel)  
 Crushed stone (and dimension)  
 Dredge  
 Mills  
 Underground

*Coal Mines—Types of Operations*

Underground  
 Surface  
 Preparation plants not part of underground or surface operations

(g) "Related standards" means mandatory safety or health standards which are within the same subpart of section of the Code of Federal Regulations or which are designed to protect miners from the same or a similar hazard.

**§ 104.3 Identification of mines developing a potential pattern of violations.**

(a) MSHA will compile objective data to document the operator's overall safety and health record, including violations of mandatory safety and health standards. The data will be classified into categories which collectively reflect both the enforcement activity and management practices at each mine during three-month periods for underground mines and six-month

periods for surface mines as set forth below:

(1) Total number of Section 104(a) citations for significant and substantial violations.

(2) Comparative number of significant and substantial violations in successive inspections.

(3) Total number of Section 104(d) citations and orders for unwarrantable failure violations.

(4) Total number of Section 104(b) withdrawal order for failure to abate significant and substantial violations.

(5) Total number of Section 107(a) imminent danger orders which resulted from significant and substantial violations.

(6) Total number of recurring significant and substantial violations of the same or related standards.

(7) Total number of violations of regulations concerning the submittal of reports or plans, examinations, and training of personnel.

(8) Operator's accident/injury/illness/fatality incidence rate.

(9) Inspector's statements for citations and orders involving significant and substantial violations.

(10) Total number of inspection days.

(b) The data will be reviewed as often as necessary but no less frequently than once each year and will be used to bring to the District Manager's attention those mines which warrant consideration to determine whether a pattern of violations exists or is developing. The information from any one or any combination of the above categories may be sufficient to bring a particular mine to the attention of the District Manager. The data will undergo further screening and analysis, including review by a committee appointed by the District Manager which shall be called the District Review Committee. The District Review Committee shall consist of a minimum of three persons selected by the District Manager, at least one of whom shall be a Subdistrict Manager or senior level supervisor and the remainder of whom shall be representatives of the Secretary of Labor with no less than 2 years of experience. The District Review Committee will consider both quantitative and qualitative factors as set forth in the criteria in § 104.4 of this part to make a recommendation to the District Manager as to whether a pattern of violations exists at a particular mine.

(c) Each criterion shall be evaluated both individually and in relation to the others to determine if there is a pattern of violations at a mine. A determination that a pattern of significant and substantial violations exists at a mine may be made on the basis of affirmative

findings with respect to any one or any combination of the criteria or upon consideration of all of the criteria as a whole. The weight to be given to a particular criterion may vary with the individual facts and circumstances of each case.

**§ 104.4 Criteria for determining when a pattern of violations exist.**

To determine whether a pattern of violations exists at a particular mine, MSHA shall consider the following criteria:

(a) There has been a chronic recurrence of significant and substantial violations at the mine during one or more review periods. Generally, in applying this criterion, MSHA shall consider but is not limited to the following factors:

(1) Whether the average number of significant and substantial violations cited per inspection day was at or above the 90th percentile for all mines of similar size and type. This factor shall be applied as follows: All the mines in a particular size and type category shall be ranked numerically, based on each mine's average number of significant and substantial violations cited per inspection day. The mines with the highest numbers in this ranking have the most significant and substantial violations cited per inspection day, compared to other mines of similar size and type. If a mine is within the highest 10 percent of all the mines of similar size and type when ranked according to average number of significant and substantial violations cited per inspection day, this mine may be considered to have a chronic recurrence of significant and substantial violations during the review period.

(2) Whether the average number of significant and substantial violations cited per inspection day was at or above the 75th percentile for all mines of similar size and type and has increased since a previous review period. This factor shall be applied as follows: All mines in a particular size and type category shall be ranked numerically based on each mine's average number of significant and substantial violations cited per inspection day. If a mine is within the highest 25 percent of all the mines of similar size and type when ranked in this manner, and the average number of significant and substantial violations cited per inspection day has increased since a previous review period, this mine may be considered to have a chronic recurrence of significant and substantial violations during the review period.

(3) Whether a disproportionate number of the significant and

substantial violations cited per inspection day were violations of the same or a related standard. The number may be considered disproportionate if more than 25 percent of the significant and substantial violations are violations of the same or a related standard.

(b) Enforcement mechanisms of the Federal Mine Safety and Health Act of 1977 other than section 104(a) citations have been utilized during one or more review periods at the mine to address the safety or health hazards that could have been created by significant and substantial violations cited during a review period. Generally, in applying this criterion, MSHA shall consider, but is not limited to the following factors:

(1) Whether any withdrawal orders were issued pursuant to section 104(d)(1) of the Federal Mine Safety and Health Act of 1977 and whether any section 104(d)(2) orders were issued.

(2) Whether there were any § 107 imminent danger orders issued which resulted from violations of the same or related standard as any of the significant and substantial violations cited during a review period.

(c) The history of accidents, injuries, illnesses and fatalities at the mine during one or more review periods indicates that the significant and substantial violations cited at the mine have had an impact on the overall safety and health of the miners. Generally, in evaluating this criterion, MSHA shall consider but is not limited to the following factors:

(1) Whether the incident rate or severity measure has been above the national average.

(2) Whether there were any accidents, injuries, illnesses or fatalities of the type which the violated standards were designed to prevent.

(d) The management at the mine has demonstrated poor safety or health practices or a lack of a general commitment to effectively protecting the safety and health of the miners during one or more review periods. Generally, in evaluating this criterion, MSHA shall consider, but is not limited to the following factors:

(1) The degree of good faith the operator demonstrated in attempting to achieve rapid compliance after receiving the citations for the significant and substantial violations as evidenced by such things as:

(i) Extraordinary efforts to achieve abatement of the violation within the time given; or

(ii) Utilization of all available resources and personnel to abate the violation as rapidly as possible; or

(iii) Utilization of a method of abatement which was likely to prevent the recurrence of the violation.

(2) The gravity of the significant and substantial violations as evidenced by such things as:

(i) The probability of occurrence of the events the cited standards were directed against; or

(ii) The types of injuries or illnesses that could be expected to result from the events the cited standards were directed against; or

(iii) The number of people who would be affected if the events occurred.

(3) The degree of negligence of the operator with respect to the significant and substantial violations.

(4) Whether there have been recurrent violations of standards or regulations concerning requirements for the submittal of reports or plans, the conduct of preshift or on shift examinations or qualifications and training of personnel.

(5) Whether there were any citations changed to withdrawal orders for failure to abate significant and substantial violations.

(6) What resources the operator devoted to mine safety and health.

(e) There were no extenuating circumstances at the mine beyond the management's control during the review periods which strongly mitigate affirmative findings with respect to any of the above criteria.

#### § 104.5 Procedures for issuance of notice.

(a) When the District Manager makes a preliminary determination that a particular mine has a pattern of violations, the District Manager shall inform the operator and the miner's representative in writing (certified mail, return receipt requested or personal service) of MSHA's intent to issue a notice that a pattern of violations exists at that mine. The letter of intent shall specify the basis for the determination and shall give the operator and representative of miners 15 calendar days after receipt of the letter of intent to provide additional information for consideration, review all documents upon which the determination is based, and submit a written request for a conference with the District Manager.

(b) Upon written request by the operator or representative of miners during the 15-calendar-day period, the District Manager shall arrange for a conference to be held as expeditiously as possible. The operator and representative of miners shall be invited to attend any conference held pursuant to this section.

(c) After a conference is held or additional information is submitted, the

District Manager will notify the operator in writing either (1) that a pattern of violations exists, or (2) that a notice of pattern will not be issued at this time. In either case, the District Manager will state the reasons for the determination, which shall be the final determination of MSHA.

(d) If the operator does not make a request to review the documents, submit additional information or have a conference within the allotted time, the operator shall be notified in writing, pursuant to section 104(e) of the Act, that a pattern of violations exists at its mine effective immediately upon receipt of notification.

(e) The operator shall post all letters of intent and notices on the mine bulletin board.

[FR Doc. 80-24514 Filed 8-14-80; 8:45 am]  
BILLING CODE 4510-43-M

**DEPARTMENT OF LABOR****Mine Safety and Health Administration****30 CFR Part 104****Pattern of Violations**

**AGENCY:** Mine Safety and Health Administration, Labor.

**ACTION:** Withdrawal of proposed rule; advance notice of proposed rulemaking.

**SUMMARY:** The Mine Safety and Health Administration (MSHA) is considering rulemaking on criteria and procedures for identifying mines with a pattern of violations of mandatory standards that significantly and substantially contribute to safety and health hazards. On August 15, 1980, MSHA published a proposed rule to establish criteria for identifying mines having a pattern of violations (45 FR 54646). Commenters were generally opposed to the proposal, stating that it was complex, too statistically oriented, and vague. In addition, since that time, administrative litigation resulting in changes in Agency enforcement policies and a 1982 revision of the Agency's civil penalty procedures have affected key provisions of that proposal. The Agency now has experience with these changes and is considering resumption of rulemaking. This notice withdraws the 1980 pattern of violations proposal and outlines for public comment possible criteria and procedures for a new pattern of violations proposal.

**DATES:** This withdrawal is effective February 8, 1985. Comments on the Advance Notice of Proposed Rulemaking must be received by April 9, 1985.

**ADDRESSES:** Office of Standards, Regulations, and Variances, MSHA; Room 631 Ballston Tower No. 3; 4015 Wilson Boulevard; Arlington, Virginia 22203.

**FOR FURTHER INFORMATION CONTACT:** Patricia W. Silvey, Director, Office of Standards, Regulations, and Variances, MSHA, (703) 235-1910.

**SUPPLEMENTARY INFORMATION:** Under section 104(e) of the Federal Mine Safety and Health Act of 1977 (Mine Act), the Secretary of Labor is authorized to issue a notice to a mine operator if the operator's mine has a pattern of violations of mandatory safety or health standards which significantly and substantially contribute to health or safety hazards at the mine. Congress established this provision of the Mine Act to address the problem of mine operators who have recurring violations of health and safety standards.

Under the Mine Act, once a section 104(e) pattern of violations notice is issued, any subsequent inspection within 90 days which reveals another significant and substantial (S&S) violation of mandatory safety or health standards results in the issuance of a withdrawal order until the violation is abated. The Mine Act further provides for withdrawal orders upon any subsequent finding of S&S violations until a complete inspection of the entire mine reveals no S&S violations.

On August 15, 1980 (45 FR 54656), the Mine Safety and Health Administration (MSHA) published a proposal in the *Federal Register* which would establish criteria for identifying mines which have a pattern of violations. Commenters were generally opposed to the proposal, stating that it was complex, too statistically oriented, overbroad, and vague. In addition, numerous commenters stated that it was inappropriate of MSHA to establish pattern of violations regulations at that time because of litigation pending before the Federal Mine Safety and Health Review Commission (Review Commission) that involved the definition of S&S violations. At that time, MSHA cited all violations as S&S except technical violations and violations that posed only a remote or speculative risk of injury. In April 1981, the Review Commission narrowed the definition of S&S violations. The Review Commission defined S&S violations as those that have a reasonable likelihood of resulting in a reasonably serious injury or illness (*Secretary of Labor v. Cement Division, National Gypsum Co.*, 3 FMSHRC 822). MSHA adopted this revised definition in May 1981.

Commenters also stated that review of the Agency's then pending regulations for the assessment of civil penalties could affect provisions of the pattern of violations proposal. In May 1982, MSHA revised its regulations for the assessment of civil penalties (47 FR 22286).

In view of these developments, MSHA is withdrawing the 1980 pattern of violations proposal. However, the Agency has gained sufficient experience with both the revised definition of S&S violations and the changes made in the civil penalty regulations to reconsider rulemaking to establish procedures and criteria for issuance of a pattern notice.

During preliminary development of a new approach for implementing pattern of violations criteria and procedures, MSHA has been guided by the principle expressed in the Mine Act's legislative history that issuance of a section 104(e) pattern of violations notice should be an enforcement tool reserved for dealing

with chronic violators who do not respond to other efforts to bring their mines into compliance with health and safety standards. Congress made it clear that chronic violators demonstrate a disregard for the safety and health of miners by allowing the same work hazards to occur again and again without addressing the underlying problems.

At this point, MSHA believes that pattern of violations criteria should focus on the health and safety record of each mine rather than on a strictly quantitative comparison of each mine to industry-wide norms. In contrast to the 1980 proposal which relied on a statistically-oriented approach, the Agency envisions use of simplified criteria to identify the existence of a pattern of violations, coupled with procedures for fair and full notice. Review and appeal procedures would be the same as for any other citation or order issued under the Mine Act.

To implement this approach, MSHA is considering an enforcement concept which would incorporate the following elements: initial screening to identify any mines which may be developing a pattern of S&S violations; application of criteria to determine whether a pattern of violations exists at an identified mine; and notification to the mine operator of the potential for a pattern of violations notice with an opportunity to respond.

Initial identification of mines with a possible pattern of violations could occur through regular enforcement activities. Once a mine has been identified, MSHA would review conditions at the mine to determine whether or not a pattern of violations exists at the mine. At this point, MSHA envisions the use of two principal criteria. First, are the S&S violations common to a particular health or safety hazard or are there S&S violations throughout the mine which represent an underlying health or safety problem? Second, is the mine on a section 104(d) unwarrantable failure sequence, indicating the other enforcement measures have been ineffective? If these two criteria are met, MSHA would notify the mine operator that the operator's mine is subject to a section 104(e) pattern notice and state the reasons upon which such a determination was based. After allowing the operator an opportunity to respond, and absent a change in the health and safety conditions at the mine, MSHA would then issue a section 104(e) pattern notice. Once a mine is placed on a pattern of violations notice, the notice would be terminated upon an inspection

of the mine by MSHA in which no S&S violations are found.

MSHA considers early public participation in formulating criteria and procedures to be used for issuance of pattern of violations notices to be important. In particular, the Agency would like suggestions on what additional factors, if any, should be used for determining whether a pattern of

violation exists. These factors might include work practices or mining conditions at the mine or the mine's accident history. In addition, MSHA would like comments on whether a proposal should include administrative procedures for terminating a pattern notice. The Agency welcomes comments on these and all other issues of concern.

#### List of Subjects in 30 CFR Part 104

Mine safety and health.

Dated: January 31, 1985.

David A. Zegeer,

*Assistant Secretary for Mine Safety and Health.*

[FR Doc. 85-2929 Filed 2-1-85; 2:43 pm]

BILLING CODE 4510-43-M

By the Commission.

**Shirley E. Hollis,**  
*Assistant Secretary.*

March 28, 1985.

### Securities and Exchange Commission

#### *Regulatory Flexibility Act Certification*

I, John S.R. Shad, Chairman of the Securities and Exchange Commission, hereby certify, pursuant to 5 U.S.C. 605(b), that proposed Rules 14a-13 and proposed amendments to Rule 14b-1 and 14c-7, if promulgated, will not have a significant impact on a substantial number of small entities. The reasons for this certification are as follows: Proposed Rule 14a-13 provides guidance to, and establishes obligations of, registrants who wish to communicate directly with beneficial owners. Proposed Rule 14a-13(a), (present Rule 14a-13(d)), and Rule 14c-7 require a registrant to inquire of its record holders the number of proxies, other proxy soliciting material, or information statements necessary to forward to beneficial owners and to supply its record holders with the appropriate number of copies. This amendment neither increases nor decreases the cost or burden on a small entity registrant associated with complying with these obligations. Compliance with Rule 14a-13 (b) and (c) is voluntary in the sense that only registrants who choose to communicate directly with beneficial owners need comply with the Rule's requirements to request security holder lists from all brokers and to pay the reasonable expenses of brokers associated with providing beneficial owner lists. Accordingly, only those small entities who wish to communicate directly with their beneficial owners need incur the direct costs associated with Rule 14a-13 (b) and (c). Small entity registrants will be required, however, to reimburse brokers for start-up costs associated with furnishing the beneficial owner information, at the rate of \$.20 per proxy for this year's annual proxy solicitation and at a rate sufficient to cover the remaining start-up costs for next year's annual meeting proxy solicitation.

Rule 14b-1 establishes the obligations of brokers in connection with forwarding communications to beneficial owners. Proposed amendments to paragraph (c) would require a broker, at the registrant's request, to compile the list of beneficial owners more often than one time per year. This amendment will impose no additional cost on small entities. Proposed paragraph (d) provides that a broker's performance of obligations

imposed by the Rule is contingent on assurances of reimbursement from the registrant of all reasonable expenses incurred in connection with performing the obligations imposed by the Rule. Proposed paragraph (d) which also specifies that a broker has no obligation to mail the annual report to security holders if the registrant notifies the broker that it intends to mail the annual report directly to those beneficial owners whose identity is disclosed to the registrant, will impose no additional cost on small brokers subject to the Rule.

Dated: March 28, 1985.

John S.R. Shad,

*Chairman.*

[FR Doc. 85-7954 Filed 4-4-85; 8:45 am]

BILLING CODE 8010-01-M

### DEPARTMENT OF LABOR

#### Mine Safety and Health Administration

##### 30 CFR Part 104

#### Pattern of Violations; Extension of Comment Period

**AGENCY:** Mine Safety and Health Administration, Labor.

**ACTION:** Notice to extend period for public comments.

**SUMMARY:** Due to requests from the public, the Mine Safety and Health Administration (MSHA) is extending the period for public comment regarding its advance notice of proposed rulemaking concerning criteria and procedures for identifying mines with a pattern of violations.

**DATE:** Written comments should be submitted by May 10, 1985.

**ADDRESS:** Comments should be sent to: Patricia W. Silvey, Director, Office of Standards, Regulations and Variances; MSHA; Room 631; Ballston Tower No. 3; 4015 Wilson Boulevard; Arlington, Virginia 22203.

**FOR FURTHER INFORMATION CONTACT:** Patricia W. Silvey, Director, Office of Standards, Regulations and Variances; MSHA; (703) 235-1910.

**SUPPLEMENTARY INFORMATION:** On February 8, 1985, MSHA published an advanced notice of proposed rulemaking (50 FR 5470) inviting public participation in the Agency's formulation of criteria and procedures to be used for the issuance of a pattern of violations notice. In that notice, the Agency also withdrew an August 15, 1980 (45 FR 54656) proposal regarding pattern of violations. The comment period was scheduled to end on April 9, 1985.

Due to requests from the public, MSHA is extending the period for public comment to May 10, 1985. The Agency would like to emphasize that anyone submitting comments by the April 9, 1985 date may file additional comments by May 10, 1985, if they so desire. All interested members of the mining community are encouraged to submit comments by May 10, 1985.

Dated: April 2, 1985.

David A. Zegeer,

*Assistant Secretary for Mine Safety and Health.*

[FR Doc. 85-8223 Filed 4-4-85; 8:45 am]

BILLING CODE 4510-43-M

### FEDERAL MARITIME COMMISSION

#### 46 CFR Parts 516, 560 and 572

[Docket No. 85-10]

#### Marine Terminal Agreements

**AGENCY:** Federal Maritime Commission.

**ACTION:** Proposed rulemaking.

**SUMMARY:** This proposes the exemption of certain classes of marine terminal agreements from the filing and/or waiting period requirements of the Shipping Act of 1984 and from the filing and/or approval requirements of the Shipping Act, 1916. Two types of exemptions are proposed. An exemption from both acts' filing requirements would be granted to landlord-tenant marine terminal facility leases, agreements relating to marine terminal facilities or services used in connection with the handling of proprietary cargo, agreements relating to the financing or construction of marine terminal facilities and agreements relating to off-dock container freight station facilities or services. All other classes of marine terminal agreements, with the exception of marine terminal conference, marine terminal interconference and marine terminal discussion agreements, would be exempted from applicable waiting period/approval requirements, on condition that they be filed for informational purposes and Federal Register publication.

**DATE:** Comments on or before June 4, 1985.

**ADDRESS:** Send comments (original and 15 copies) to: Bruce A. Dombrowski, Acting Secretary, Federal Maritime Commission, Washington, D.C. 20573. (202) 523-5725.

**FOR FURTHER INFORMATION CONTACT:** Joseph C. Polking, Director, Bureau of Agreements and Trade Monitoring, Federal Maritime Commission.

## DEPARTMENT OF LABOR

## Mine Safety and Health Administration

## 30 CFR Part 104

RIN 1219-AA04

## Pattern of Violations

AGENCY: Mine Safety and Health Administration, Labor.

ACTION: Proposed rule.

**SUMMARY:** The Mine Safety and Health Administration (MSHA) is proposing criteria and procedures for identifying mines with a "pattern of violations" of mandatory standards that significantly and substantially contribute to safety or health hazards. The proposed rule would implement section 104(e) of the Federal Mine Safety and Health Act of 1977 (Mine Act). Congress established this provision to bring into compliance mines where operators habitually allow violations of standards to occur, resulting in serious safety or health hazards.

**DATES:** Comments on the proposed rule must be received by July 31, 1989.

**ADDRESSES:** Send comments to the Office of Standards, Regulations, and Variances, MSHA, Room 631, Ballston Tower No. 3, 4015 Wilson Boulevard, Arlington, Virginia 22203.

**FOR FURTHER INFORMATION CONTACT:** Patricia W. Silvey, Director, Office of Standards, Regulations, and Variances, MSHA; (703) 235-1910.

**SUPPLEMENTARY INFORMATION:****I. Background**

When enacting the Mine Act, Congress expressed particular concern with mine operations that have a serious safety and health management problem characterized by repeated "significant and substantial" (S&S) violations of mandatory health and safety standards, which are merely abated as they are cited. The enforcement provisions of the Mine Act's predecessor legislation, the Federal Coal Mine Health and Safety Act of 1969 and the Metal and Nonmetallic Mine Safety Act of 1966, were considered inadequate to break such a cycle of violation, citation, and abatement and restore the mine to a safe and healthful work place. As a means to address this situation, Congress added a new provision to the Mine Act, section 104(e), which authorizes MSHA to impose stringent sanctions on mines that develop a "pattern of violations."

Section 104(e) requires that a notice be issued to a mine operator if the mine has a pattern of violations of mandatory

standards which could significantly and substantially contribute to health or safety hazards at the mine. Once a section 104(e) pattern notice is issued, any inspection within 90 days which reveals another S&S violation results in an order to withdraw all persons from the affected area of the mine until the violation is abated. Withdrawal orders continue to be issued for subsequent S&S violations until an inspection of the entire mine reveals no S&S violations. A withdrawal order requires all miners to be removed from the area affected by the violation and prohibits entry into the area, with the exception of persons assigned by the operator to eliminate the violation.

The legislative history of the Mine Act<sup>1</sup> emphasizes that the provisions of section 104(e) are intended for use at mines with a record of repeated S&S violations and where the other enforcement provisions of the statute have not been effective in bringing the mine into compliance with Federal health and safety standards. The Mine Act does not define "pattern of violations," but rather authorizes the Secretary to make such rules as necessary to establish criteria for determining when a pattern exists. The Secretary has broad discretion in determining this criteria.

The need for a pattern of violations provision in the 1977 Act became apparent to Congress in its investigation of the Scotia Mine disaster which occurred in March 1976. The Scotia Mine had a chronic history of persistent dangerous violations that were cited by the inspector and abated by the operator. But the operator would then permit the mine to lapse back into violation, exposing the miners to the same risks all over again. The Senate Committee report stated that section 104(e) of the 1977 Act was intended as "an effective tool to protect miners when the operator demonstrates his disregard for the health and safety of miners through an established pattern of violations." (Leg. Hist. at 620). The Committee viewed the pattern notice as an indication "to both the mine operator and the Secretary that there exists at that mine a serious safety and health management problem, one which permits continued violations of safety and health standards. The existence of such a pattern should signal to both the operator and the Secretary that there is a need to restore the mine to effective

safe and healthful conditions and that the mere abatement of violations is insufficient." (Leg. Hist. at 621). MSHA believes that Congress intended the pattern sanctions to be directed at abatement rather than the closure of mines.

On August 15, 1980, MSHA published a proposed rule in the Federal Register to establish criteria for identifying mines which have a pattern of violations (45 FR 54656). In response to the proposal, numerous commenters stated that it was then untimely for MSHA to establish pattern of violation regulations because of litigation pending before the Federal Mine Safety and Health Review Commission (Review Commission) that involved how to interpret the S&S provisions of the Mine Act. Prior to the Review Commission's decision, MSHA had cited all violations as S&S, except technical violations and violations that posed only a remote or speculative risk of injury. In April 1981, the Review Commission narrowed the concept of S&S violations by defining them as violations that have a reasonable likelihood of resulting in a reasonably serious injury or illness (*Secretary of Labor v. Cement Division, National Gypsum Co.*, 3 FMSHRC 822, 2 MSHC 1201 (1981)). MSHA adopted this revised definition as Agency policy in May 1981. The Review Commission has also held that the principles of *National Gypsum* apply to violations of health standards (*Consolidation Coal Co. v. Secretary of Labor*, 8 FMSHRC 890 (1986)).

In addition to these concerns, commenters on the 1980 proposal stated that the Agency's then-pending review of the civil penalty regulations could affect provisions of the pattern of violations proposal. In May 1982, MSHA revised its regulations for the assessment of civil penalties. Other criticisms of the proposal were that it was complex, too statistically-oriented and vague.

In February 1985, MSHA announced in the Federal Register (50 FR 5470) that it was withdrawing the 1980 proposal and gave advance notice of a proposed rulemaking (ANPRM) which would address many of the concerns expressed about the 1980 proposal. In that notice, MSHA stated that it intended to develop a regulation that would focus on the safety and health record of each mine, rather than on strictly quantitative comparisons of mines to industry-wide norms. The Agency further stated that it planned to develop simplified criteria to identify the existence of a pattern, coupled with procedures for fair and full notice, including an opportunity for the affected parties to respond to the

<sup>1</sup> S. Rep. No. 95, 95th Cong., 1st Sess. 33 (1977) reprinted in "Legislative History of the Federal Mine Safety and Health Act of 1977," Subcomm. on Labor of the Comm. on Human Resources, 95th Cong., 2nd Sess. 620 (1978).

Agency's initial evaluation that a pattern of violations may exist at a mine. MSHA received suggestions and views on the ANPRM from commenters representing many segments of the mining community.

This proposed rule is consistent with the concept outlined in the February 1985 ANPRM and contains the following elements: a statement of purpose; procedures for initial identification of mines that may be developing a pattern of violations; criteria for determining whether a pattern of violations exists at a mine; notification procedures which would provide both the mine operator and miners' representatives an opportunity to respond to the Agency's evaluation that a pattern of violations may exist at a mine; and procedures for termination of a pattern notice.

## II. Discussion of Proposed Rule

### A. General Discussion

The issue most often raised by the commenters responding to the ANPRM was MSHA's enforcement practices concerning S&S violations. Because S&S violations form the basis for finding a pattern of violations, several commenters stated that a more uniform application of the criteria for determining what violations are S&S is needed in MSHA's enforcement activities. These commenters suggested that the criteria for S&S violations be defined in the rule as it was by the Review Commission in the *National Gypsum* case.

MSHA agrees that application of the pattern of violations provision must be in agreement with the definition of S&S violations established by the Review Commission and adopted by the Agency. However, MSHA does not believe that a definition of what constitutes an S&S violation is appropriate or necessary for this regulation. In accordance with prevailing case law, each violation must be independently evaluated by inspectors to determine whether the circumstances meet the S&S violation criteria. Although any criteria which are based, in part, on subjective elements may result in some variation in how they are applied, the Agency has been working, and will continue to work, with its inspectors toward a consistent application of principles for determining what violations are S&S.

Several commenters suggested that the compliance information used to identify mines with a potential pattern of violations only include citations and orders that have become final. This would include citations and orders that have not been timely appealed, or for

which all avenues of appeal have been exhausted. Commenters also urged that the pattern provisions only apply to violations cited by MSHA after the regulations become final. Some commenters stated that they would have contested past citations and orders for S&S violations if they had known the violations could be part of an evaluation for pattern of violations.

At this stage in the rulemaking process, MSHA does not agree that the proposed pattern of violations regulations should only address S&S violations occurring after the effective date of the rule. The existing criteria for defining S&S violations are not changed by this proposal, and MSHA believes it would be appropriate to take existing S&S violations into consideration under the rule. However, the Agency does agree that any pattern notice should be based only on final citations and orders. With this approach, which is included in proposed § 104.3, mine operators would be subject to the pattern of violations enforcement provisions based on a noncompliance history developed after a full opportunity to exercise the review procedures provided for by the Mine Act.

### B. Section-by-Section Discussion

#### Section 104.1 Purpose and Scope

Several commenters requested that procedures for determining the existence of a pattern of violations be prefaced by a statement of the regulation's purpose. They were concerned that the pattern provision could otherwise receive broader application than intended by Congress.

In developing this proposal, MSHA has given close attention to the Mine Act's legislative history. The description of the objectives and concerns of the lawmakers who enacted the statute makes it clear that the pattern of violations enforcement provisions are directed at the few mine operators who have a history of repeated S&S violations, indicating that they habitually permit such violations to occur. In particular, Congress focused its attention on mines where citations or orders are issued for S&S violations and the violations are abated but then continue to recur without effective preventative measures being taken by mine management.

Although section 104(e) does not define "pattern of violations," the legislative history gives some general guidance on the kinds of situations to which the provision should apply. The Senate Committee stated its intent that:

A pattern may be established by violations of different standards, as well as by

violations of a particular standard. Moreover, while the Committee considers that a pattern is more than an isolated violation, a pattern does not necessarily mean a prescribed number of violations of predetermined standards nor does it presuppose any element of intent or state of mind of the operator. (S. Rep. No. 181, 95th Cong., 1st Sess. 33 (1977)).

Proposed § 104.1 responds to the commenters' suggestions, in concert with this legislative background. It provides that the regulations set out the criteria and procedures to determine whether a pattern of violations exists under the Mine Act and specifies that the rule address mines where operators habitually allow S&S violations of mandatory safety and health standards to occur.

#### Section 104.2 Initial Screening

This section of the proposed rule describes the review process MSHA would use to initially select mines for evaluation for a pattern of violations under § 104.3. The proposal specifies that MSHA would review the compliance records of mines at least annually. Paragraph (a) requires examining each mine's history of S&S violations, withdrawal orders for failure to abate S&S violations, and withdrawal orders for conditions posing an imminent danger to miners. Violations which are designated S&S, if they continue to occur, are indicative of an unsafe or unhealthy working environment. Repeated withdrawal orders issued for failure to abate S&S violations reflect inadequate attention to correcting unsafe or unhealthy conditions. Imminent danger withdrawal orders are issued for conditions or practices which could reasonably be expected to cause death or serious physical harm before the conditions or practices can be abated.

Paragraph (b) of the proposal would require consideration of four additional factors designed to further define those mines that should be reviewed for an emerging potential pattern of violations. The proposal does not specify that a particular number or combination of these factors be found in order to identify a potential pattern of violations.

Paragraph (b)(1) would require consideration of what enforcement measures MSHA has taken to improve compliance with respect to the violations identified as a potential pattern. For example, where there are repeated S&S violations of a standard, the Agency would take into account whether the Mine Act's enforcement provisions for unwarrantable failure to comply have been used. This factor

would recognize that, in the enforcement scheme of the Mine Act, the pattern provisions are intended to be reserved for operators who are unresponsive to the other enforcement measures provided for by the statute.

Paragraph (b)(2) calls for consideration of whether there is evidence of the mine operator's lack of good faith in correcting the problem that results in repeated S&S violations. Perfunctory abatement of S&S violations without correction of the underlying cause indicates disregard for compliance with safety and health standards. The Agency's primary focus will be to determine if enforcement activities at the mine have been broadened beyond that expected for the operation. For example, whether the following actions occurred: meetings held between MSHA officials and the operator failed to result in improved compliance; the Agency found it necessary to increase inspector presence at the mine; or increases were requested in the special assessments for violations.

Paragraph (b)(3) would require consideration of the mine's accident, injury or illness record. In particular, the Agency will be concerned with those mines having incidence rates above the average for that type of operation, or which have been found to under report accidents, injuries or illnesses, indicating either intentional concealment of problems or a serious management problem. Where miners have been injured or killed, or occupational illnesses have developed among the work force, a mine operator is on notice that attention to the mine's safety or health programs is needed. This should be reflected in the compliance history.

Paragraph (b)(4) provides for consideration of whether mitigating circumstances exist. This factor would recognize that circumstances beyond an operator's ability to control through diligent compliance efforts can contribute to the occurrence of violations. The Mine Act's pattern provisions are directed at improving compliance at mines where repeated S&S violations result from an inadequate commitment by mine management to achieving and maintaining compliance with safety and health standards.

The initial screening process is intended to have equal application to all types and sizes of mines. It is intended to identify only mines that would then be evaluated for a potential pattern of violations through application of the criteria in § 104.3. The proposal would also retain flexibility in the initial

screening process to permit MSHA to develop and improve its methods of applying the initial screening criteria.

In line with these objectives, the proposal does not prescribe intervals for MSHA review, except that each mine would receive at least one review annually. Further, the rule does not specify the period of a mine's history that would be examined during the initial screening process, nor a particular number or combination of citations or orders that would result in a mine being selected for evaluation for a potential pattern of violations. Instead, each mine would be regularly looked at by MSHA for signs of a compliance problem or hazardous conditions that threaten miner safety or health.

MSHA anticipates concentrating its efforts during the initial screening process on identifying those mines with evident compliance problems. While the Agency would screen mines at least annually, mines warranting additional attention could be looked at more frequently. Initially, MSHA believes that a mine's compliance records for a period of two years would provide an informative, relevant perspective. However, interruptions in mining operations, changes in mine management, or other factors could indicate that this period should be longer or shorter.

Commenters responding to the ANPRM suggested a variety of specific screening mechanisms ranging from an automatic quarterly review of all mines with more S&S violations than an industry-wide percentile to normalization of the number of S&S violations for mine size over the previous two years. Under the proposal, these or other reasonable analytical methods could be used to evaluate mines' compliance records.

#### Section 104.3 Pattern Criteria

Once a mine is identified through the proposed initial screening process, MSHA would apply the provisions of this section to identify mines with a potential pattern of violations. As provided by paragraph (b), the compliance history data used for this evaluation would be the same as that used for initial screening, except that only final citations and orders would be considered. The proposal prescribes three criteria for discerning a potential pattern of violations.

As with the initial screening procedures, the proposal does not quantify the violations or other factors which would identify a mine as having a pattern of violations. At this state, MSHA believes it is necessary for the Agency to retain the flexibility to

individually evaluate each mine's compliance history and the particular circumstances involved when conducting a review for a potential pattern of violations.

The proposed pattern criteria focus on a mine's history of repeated S&S violations. To facilitate identification of a potential pattern, the proposal directs attention to violations linked together in one of three ways: (1) Violations of the same standard; (2) violations of standards related to the same hazard; or (3) violations caused by unwarrantable failure to comply. Each of these three categories would be independently evaluated.

Repeated S&S violations of the same standard, or of standard related to the same hazard, may be the result of a chronic condition at a mine in which violations are abated when cited without correction of the underlying cause of the violations. Repeated S&S violations caused by unwarrantable failure to comply also suggest that an underlying safety or health management problem may exist at the mine.

Paragraph (b) provides that only final citations and orders would be considered when identifying mines with a potential pattern of violations under this section.

In response to the ANPRM, MSHA received a variety of recommendations for criteria to be used for determining whether a mine has a pattern of violations, some of which are reflected in the proposal. Several commenters stated that there should be a direct correlation between the violations identified as a pattern and reportable accidents and injuries at the mine. The proposed screening criteria acknowledge the relevance of accidents, injuries and illnesses to a pattern of violations regulation. MSHA is unable, however, to precisely link S&S violations to the occurrence of accidents and injuries except when they involve an accident. Individual health violations are likewise difficult to directly link with the development of occupational illnesses. In addition to being potentially unworkable, this approach would be inconsistent with the preventative purposes of the Mine Act.

#### Section 104.4 Issuance of Notice

As indicated in the ANPRM, MSHA believes that an important feature of an effective pattern of violations regulation is an opportunity for full and fair notice to all parties involved prior to a pattern of violations notice being issued. To serve the remedial purposes of the Mine Act, including section 104(e), the proposal also provides opportunities for

input from mine operators and the representative of miners at the mine before a pattern of violations notice would be issued. Under the proposal, the final decision of whether to issue a pattern of violations notice would be made by the administrator for Coal Mine Safety and Health or Metal and Nonmetal Mine Safety and Health, as appropriate.

Paragraph (a) of the proposal describes the notification procedures to be followed when a potential pattern of violations has been identified. The local District Manager would notify the mine operator in writing, with a copy provided to the representative of miners at the mine. Included in this notification would be the basis for identifying the mine as having a potential pattern of violations and the time within which the mine operator could respond to the notification. Recognizing that potentially dangerous conditions may exist at the mine, the proposal would limit the time for response to 20 days. A shorter period could also be set by the District Manager.

During the time for responding to a notification that a potential pattern of violations has been identified, the mine operator would be given an opportunity to review all documents upon which the pattern of violations evaluation was based, to provide additional information, and to request a conference with the District Manager. The proposal specifies that such a conference be held within 10 days of the request, again recognizing that there is evidence of potentially dangerous conditions at the mine. The miner's representative would also be notified of the conference and afforded an opportunity to participate.

During the time permitted for response to notification of potential pattern of violations, the operator could also institute a program at the mine to avoid repeated S&S violations. If this were done, the proposal authorizes the District Manager to allow additional time to determine whether the operator's program is effective. This period of evaluation could not exceed 90 days under the proposal, and the representative of the miners would be afforded an opportunity to discuss the program with the District Manager.

This aspect of the proposal is intended to encourage and permit an opportunity for the operator to undertake the measures necessary to restore the mine to a safe and healthful working environment. In MSHA's view, a sound safety and health program developed and adopted by the mine operator most effectively reduces S&S violations. The District Manager's decision of whether to permit an

evaluation period for an operator's program to avoid repeated S&S violations, and the length of the evaluation period, would be influenced by the quality of the operator's program. Consistent with the nature of the problem at which the Mine Act's pattern of violations provisions are directed, the operator's program would be expected to address the underlying cause of repeated S&S violations on a permanent basis.

Paragraph (b) of the proposal provides procedures for initiating a decision by the Administrator as to whether a pattern of violations exists at the mine. When the opportunities provided for by paragraph (a) of this section do not lead to a resolution of the circumstances which prompted the notice of a potential pattern of violations, the District Manager would submit a report to the Administrator. The District Manager's report, which would be required within 120 days from the notification of a potential pattern of violations at the mine, would include the evaluation made under these proposed regulations. A copy of the report would also be provided to the mine operator and representative of the miners. Both parties would have the opportunity to comment on the report within 15 days of receipt.

Within 30 days of receipt of a report from the District Manager, paragraph (c) would require the Administrator to issue a decision as to whether a pattern of violations notice would be issued. The Administration's decision would be provided to both the operator and miner's representative. Under paragraph (d), notification of a pattern of violations would be required to be posted at the mine.

Commenters responding to the ANPRM expressed conflicting views on the procedural steps that would be appropriate between identification of a potential pattern of violations at a mine and issuance of a notice that a pattern of violations exists. One commenter stated that Congress did not intend an operator to have any warning before the Agency issues a pattern of violations notice. According to this commenter, the citations and orders issued by MSHA to the operator for repeated S&S violations of standards provide the operator with ample warning of a pattern of violations notice. Other commenters suggested a lengthy series of conferences and appeals leading up to a pattern of violations notice, with the Secretary of Labor making the final decision.

The objective of these proposed regulations is to identify mines with a serious safety and health management problem which is indicated by repeated

S&S violations of mandatory standards. In proposing these regulations, MSHA is aware that section 104(e) enforcement sanctions are severe. As discussed elsewhere in this preamble, orders of withdrawal are issued for all S&S violations occurring at a mine that has been issued a pattern of violations notice. Also, as a practical matter, reaching the level of compliance required for termination of a pattern of violations notice can be expected to be difficult at some mines. This issue is discussed further below.

With this in mind, the proposal includes, for both the mine operator and representative of the miners, procedures for notification and an opportunity to participate in the determination of whether to issue a pattern of violation notice. On the other hand, these procedures are confined to what MSHA believes are reasonable and prudently prompt time frames.

#### Section 104.5 Termination of Notice

This section of the proposal reflects the Mine Act's requirement that once a pattern of violations notice is issued under section 104(e)(1), the notice can only be terminated after an MSHA inspection of the entire mine finds no S&S violations of a mandatory safety or health standard. As commenters on the 1980 proposal and the recent ANPRM have observed, such a "clean inspection" of the entire mine is a difficult requirement to meet in the dynamic mining environment, particularly at large mines. As a practical matter, MSHA agrees. It is not, however, the Agency's intent that a mine under pattern orders remain so after remedial actions by the operator have restored safe and healthful conditions at the mine. Such a situation could ultimately result in having mines on a pattern sequence that have a better compliance record than mines not on a pattern sequence. MSHA requests comments on how this situation could be avoided.

To make this provision more workable, commenters suggested that the mine operator who has been issued a pattern of violations notice be permitted to request an inspection of the entire mine, or a portion of it. Partial inspections of the mine would be added together to compose an inspection of the entire mine.

The proposal includes this suggestion, with several important limitations. As specified by the Mine Act, no advance notice of an inspection would be provided. Thus, while an operator could request a mine inspection under the proposal, there could be no indication

from MSHA of when the inspection would be conducted. In addition, the proposal provides that the scope of the inspection would be determined by MSHA. Accordingly, areas of the mine not included in an inspection request by the operator could, at the Agency's discretion, be inspected. The proposal also specifies that partial inspections covering the entire mine within 90 days would constitute an inspection of the entire mine for purposes of terminating a pattern of violations notice. The 90-day limitation would tie together a series of partial inspections so that they would be representative of the overall conditions at the mine. The 90-day limitation is consistent with the time period specified in sections 104(d) and 104(e) of the Mine Act for placing an operator on the withdrawal order sequence. The combining of a series of partial inspections to compose a complete inspection of the mine is consistent with the decision of the Federal Mine Safety and Health Review Commission regarding the 104(d) unwarrantable failure provision.

Under the Mine Act, once an inspection of the entire mine is completed and no S&S violations of mandatory standards are found, the pattern of violations is terminated.

### III. Executive Order 12291 and Regulatory Flexibility Act

In accordance with Executive Order 12291, MSHA has prepared an initial analysis to identify potential costs and benefits associated with proposed Part 104. This analysis has formed the basis for the initial Regulatory Flexibility Act. In this analysis, MSHA has determined that the proposed rule would not result in major cost increases nor have an incremental effect of \$100 million or more on the economy. Therefore, the rule does not meet the criteria for a major rule and a Regulatory Impact Analysis is not required.

The benefits of the proposed rule are the fatalities, injuries, and illnesses that will be prevented at 15,100 mines with 243,000 employees. MSHA cannot predict whether any pattern of violation rule would prevent mine disasters. However, this pattern proposal is directed at the root of most disasters—noncompliance with mandatory safety and health standards. The Agency does believe that the rule will result in reduced fatalities, but the nature of the rule makes quantification of such benefits difficult. MSHA also estimates that a minimum of between 14 and 57 nonfatal occurrences with days lost and between 2 and 7 nonfatal occurrences without days lost can be prevented. Such estimates do not include benefits

at mines that do not receive issuance notices but which would improve their health and safety program in order to avoid pattern sanctions. They also do not include any quantitative measure of the likely health benefits that will accrue to miners in the mining industry.

MSHA estimates that the annual cost of complying with the proposed rule is between \$30,500 and \$124,300. The variation is due to the likely number of mines that would receive issuance notices. All of the costs are associated with § 104.4, issuance of notice. Any costs that the mine operator would incur to comply with other Federal standards would be borne by those standards. A cost may also occur, of course, if the pattern rule results in the closure of a mine that would not otherwise have been closed but rather would have abated the hazards as they were cited.

The Regulatory Flexibility Act requires that agencies evaluate and include, wherever possible, compliance alternatives that minimize any adverse impact on small businesses when developing proposals. The proposed rule will likely affect smaller mines to a lesser degree than large mines. Due to their size, small mines are likely to have fewer safety and health hazards per mine to correct than larger mines. Should an entire section of a smaller mine be forced to temporarily close, however, its compliance cost on a per-mine basis would be higher than a larger mine.

### IV. Paperwork Reduction Act

This proposal contains no information collection requirements subject to the Paperwork Reduction Act of 1980.

#### List of Subjects in 30 CFR Part 104

Mine safety and health, Pattern of violations.

David C. O'Neal,

Assistant Secretary for Mine Safety and Health.

Date: May 24, 1989.

It is proposed to add a new Subchapter Q consisting of new Part 104 in Chapter I, Title 30 of the Code of Federal Regulations to read as follows:

#### SUBCHAPTER Q—PATTERN OF VIOLATIONS

#### PART 104—PATTERN OF VIOLATIONS

Sec.

104.1 Purpose and scope.

104.2 Initial screening.

104.3 Pattern criteria.

104.4 Issuance of notice.

104.5 Termination of notice.

Authority: 30 U.S.C. 814(e), 957.

#### § 104.1 Purpose and scope.

This part prescribes the criteria and procedures used by MSHA to determine whether a pattern of violations exists at a mine for purposes of section 104(e) of the Federal Mine Safety and Health Act of 1977 (Act). It addresses mines where operators habitually allow the recurrence of violations of mandatory safety or health standards which significantly and substantially contribute to the cause and effect of mine safety or health hazards.

#### § 104.2 Initial screening.

At least once each year, MSHA shall review the compliance records of mines. MSHA's review shall include an examination of the following:

(a) The mine's history of—

(1) Significant and substantial violations;

(2) Section 104(b) closure orders resulting from significant and substantial violations; and

(3) Section 107(a) imminent danger orders.

(b) In addition, the following shall be considered:

(1) What enforcement measures, other than section 104(e) of the Act, have been applied at the mine.

(2) Evidence of the mine operator's lack of good faith in correcting the problem that results in repeated S&S violations.

(3) An accident, injury, or illness record that demonstrates a serious safety or health management problem at the mine.

(4) Whether mitigating circumstances exist.

#### § 104.3 Pattern criteria.

(a) The following criteria shall be used to identify mines with a potential pattern of violations:

(1) A history of repeated significant and substantial violations of a particular standard;

(2) A history of repeated significant and substantial violations of standards related to the same hazard; or

(3) A history of repeated significant and substantial violations caused by unwarrantable failure to comply.

(b) Only final citations and orders shall be used to identify mines with a potential pattern of violations under this section.

#### § 104.4 Issuance of notice.

(a) When a potential pattern of violations is identified, the District Manager shall notify the mine operator in writing. A copy of the notification shall be provided to the representative of miners at the mine. The notification

shall specify the basis for identifying the mine as having a potential pattern of violations and give the mine operator a reasonable opportunity, not to exceed 20 days from the date of notification, to—

(1) Review all documents upon which the pattern of violations evaluation is based.

(2) Provide additional information.

(3) Submit a written request for a conference with the District Manager. The District Manager shall hold any such conference within 10 days of a request. The representative of miners at the mine shall be afforded an opportunity to participate in the conference.

(4) Institute a program to avoid repeated significant and substantial violations at the mine. The District Manager may allow an additional period, not to exceed 90 days, for determining whether the program effectively reduces the occurrence of significant and substantial violations at

the mine. The representative of miners shall be provided an opportunity to discuss the program with the District Manager.

(b) If the District Manager continues to believe that a potential pattern of violations exists at the mine, a report of the evaluation made under this part shall be sent to the appropriate MSHA Administrator. This report shall be submitted no more than 120 days from the notification to the operator and miners' representative under § 104.4 of this part. A copy of the report shall be provided to the mine operator and the miners' representative. Both parties will have 15 days from receipt of the report to submit written comments to the Administrator.

(c) Within 30 days of receipt of a report from a District Manager, the Administrator shall issue a decision as to whether the mine is to be issued a notice of a pattern of violations. A copy of the decision shall be provided to the

mine operator and the representative of the miners.

(d) The mine operator shall post all notifications issued under this part at the mine.

#### § 104.5 Termination of notice.

(a) Termination of a section 104(e)(1) pattern of violations notice shall occur when an inspection of the entire mine by MSHA finds no significant and substantial violations.

(b) The mine operator may request an inspection of the entire mine or portion of the mine. No advance notice of the inspection shall be provided, and the scope of inspection shall be determined by MSHA. Partial mine inspections covering the entire mine within 90 days shall constitute an inspection of the entire mine for the purposes of this part.

[FR Doc. 89-12795 Filed 5-26-89; 8:45 am]

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# **federal register**

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**Thursday  
October 19, 1989**

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## **Part III**

## **Department of Labor**

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### **Mine Safety and Health Administration**

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**30 CFR 44 and 104**

**Rules of Practice for Petitions for  
Modification of Mandatory Safety  
Standards; Pattern of Violations; Public  
Hearings; Proposed Rule**

43028

Federal Register / Vol. 54, No. 201 / Thursday, October 19, 1989 / Proposed Rules

**DEPARTMENT OF LABOR****30 CFR Parts 44 and 104****Rules of Practice for Petitions for Modification of Mandatory Safety Standards; Pattern of Violations; Public Hearings****AGENCY:** Mine Safety and Health Administration, Labor.**ACTION:** Notice of public hearings.

**SUMMARY:** The Mine Safety and Health Administration (MSHA) will hold public hearings on its proposed regulations for rules of practice for petitions for modification of mandatory safety standards, and pattern of violations. Separate hearings will be held in Pittsburgh, Pennsylvania, and Denver, Colorado, for both petitions for modification of mandatory safety standards and pattern of violations. Each hearing will cover the major issues raised by comments submitted in response to the respective proposed rules.

**DATES:** All requests to make oral presentations for the record should be submitted at least 5 days prior to each hearing date. Such requests should be specific as for which proposal the presentation will be made. Immediately before each hearing, any unallotted time will be made available to persons making later requests.

The public hearings will be held at the following locations on the dates indicated:

November 1, 1989—Pittsburgh, PA.

November 8, 1989—Denver, CO.

The public hearings on the proposed regulations for rules of practice for petitions for modification of mandatory safety standards will begin on both dates at 9:00 a.m. The public hearings on pattern of violations will begin immediately following the conclusion of all testimony on the petition for modification rule. In each day, the pattern of violations hearing will continue on the following day if necessary.

**ADDRESSES:** The hearings will be held at the following locations:

November 1, 1989, Ramada Inn—Airport Ballroom C, 1412 Beers School Road, Coraopolis, Pennsylvania 15108.

November 8, 1989, Stouffer—Concourse Hotel, Ballroom, 3801 Quebec Street, Denver, Colorado 80207.

Send requests to make oral presentations to: Mine Safety and Health Administration; Office of Standards, Regulations and Variances; Room 631; 4015 Wilson Boulevard; Arlington, Virginia 22203.

**FOR FURTHER INFORMATION CONTACT:** Patricia W. Silvey; Director, Office of Standards, Regulations and Variances; MSHA; Phone (703) 235-1910.

**SUPPLEMENTARY INFORMATION:** On May 5, 1989, MSHA published a proposed rule to revise its existing standards for rules of practice for petitions for modification of mandatory safety standards (54 FR 19492). The written comment period for this proposed rule ended on August 7, 1989.

On May 30, 1989, MSHA proposed criteria and procedures for identifying mines with a "pattern of violations" of mandatory standards that significantly and substantially contribute to safety or health hazards (54 FR 23158). The proposed rule would implement section 104(e) of the Federal Mine Safety and Health Act of 1977 (Mine Act). The written comment period for this proposed rule ended on August 31, 1989.

In the comments on the proposed rules, MSHA received requests for public hearings. The purpose of the public hearings is to receive relevant comments and respond to questions about the proposed rules. The hearings will be conducted in an informal manner by a panel of MSHA officials. Although formal rules of evidence will not apply, the presiding official may exercise discretion in excluding irrelevant or unduly repetitious material and questions.

Each session will begin with an opening statement from MSHA followed by an opportunity for members of the public to make oral presentations. During these presentations, the hearing panel will be available to answer relevant questions. At the discretion of the presiding official, speakers may be limited to a maximum of 20 minutes for their presentations. Time will be made available at the end of the hearings for rebuttal statements. Verbatim transcripts of the proceedings will be taken and made a part of the rulemaking record. Copies of the hearing transcripts will be made available for review by the public.

MSHA will also accept additional written comments and other appropriate data from any interested party, including those not presenting oral statements. Written comments and data submitted to MSHA will be included in the rulemaking record. To allow for the submission of any post-hearing comments, the record will remain open until December 8, 1989.

**Issues**

Commenters questioned a number of provisions contained in the proposals. However, some portions of the rules raised issues of particular concern,

which are discussed below. MSHA will specifically address these issues at the public hearings on each of the respective rules and solicit comments on them in addition to any other aspects of the proposed rules.

*A. Rules of Practice for Petitions for Modification of Mandatory Safety Standards*

This proposal would add timeframes for consideration of petitions at all stages of review. After a petition is filed, the proposal would require an investigation to be conducted by MSHA and, as soon as is practicable, would require the appropriate MSHA administrator to issue a draft proposed decision and order (PDO). The draft PDO would allow the parties to comment on the Administrator's decision before a final decision is issued. Several commenters suggested that the words "as soon as practicable" be deleted and be replaced with "within 30 days," stating that all parties, including the Administrator, should be bound by specified periods of time to respond. One commenter was opposed to the issuance of a draft PDO. The commenter stated that this step would only add additional time delays to the process, delaying the enhanced safety that results from a final decision on the petition. Another commenter agreed with the inclusion of the draft PDO but expressed concern that the procedures regarding requests for expedited or extended investigations and waivers of a draft PDO raises numerous questions as to timeframes.

Under the proposal, 45 days after the close of the comment period on the draft PDO, the Administrator would be required to issue a final PDO. As under the existing rules, if no hearing is requested in the 30 days after the PDO is issued, it becomes final. If a hearing is requested, the case file would be required to be referred "immediately" to the Chief Administrative Law Judge for the Department of Labor. One commenter suggested that "immediately" be deleted and be replaced with "within 5 days," giving the Administrator an explicit timeframe to meet.

A new provision would require the Chief Judge to designate an administrative law judge (ALJ) to preside over the hearings within 5 days after receipt of the case file. Commenters agreed with the established timeframe; however, one commenter felt that it would be appropriate to limit the time during which the hearing would be held and a decision issued and served on the parties involved. The commenter

stated that to establish a deadline for starting the hearing and ALJ decision process is unless without a similarly precise deadline for ending the process.

The proposal would allow 45 days for discovery, after which a hearing would be scheduled by the ALJ as soon as practicable. One commenter stated that 45 days is an unrealistic time period. Another commenter opposed the language "as soon as practicable," stating that the review process could be further streamlined and shortened by eliminating these statements.

Following the hearing, parties would have 30 days to submit proposed findings and briefs to the ALJ. One commenter had no objection to changing the time from 20 days to 30 days; however, the commenter questioned when the 30-day period would begin. Does it start from the close of the hearing or from receipt of the transcript? Within 60 days after briefs are filed, the ALJ would be required to render a decision. One commenter questioned what would happen if the ALJ missed the 60-day deadline. Another commenter felt that such a timeframe might put pressure on the ALJ to keep the record small and would make the judge reluctant to consider evidence regarding all aspects of a proposed modification.

Under the proposal, an appeal of a petition would be filed with the Secretary. Thus, in each petition proceeding, MSHA would issue only one decision—the Administrator's. Commenters are opposed to the final decision's being made by the Secretary versus the Assistant Secretary who now makes such decisions. They stated that the Assistant Secretary could be properly independent, better experienced and more available to resolve such a dispute. The expertise necessary to fully evaluate the facts and prescribe appropriate conditions to safeguard the miners resides within MSHA, not with the DOL Solicitor's Office. Removal of the decisionmaking process from those MSHA officials best suited to provide the decision may actually diminish the health and safety of the miners.

The proposal would also delete existing procedures in § 44.16 for applications for interim relief. However, the proposal does permit the Administrator to give immediate effect to a PDO in contested cases. This relief, which would be granted only after issuance of a PDO, would be effective only until superseded by the decision and order itself, or until the PDO is contested. An application for relief under this aspect of the proposal would be required to include a good faith representation that no party is expected

to contest the PDO. One commenter suggested that an application for such relief should be filed with the Administrator with copies sent to the miners' representative and any other parties to the proceedings. The commenter further suggested that the applicant be required to stipulate how delaying the effective date of the PDO for 30 days would unnecessarily disrupt mining, cause dislocation of a workforce, or otherwise unduly injure the interest of the parties to the petition process. One commenter expressed concern that a mine operator could make a good faith representation that a party is not expected to contest, have a decision granted and make major operational changes to implement the PDO, only to then have another party allege in good faith that new facts have become known and request a hearing. The first party would then be operating in a manner contrary to the mandatory standard, and MSHA would be compelled to issue a closure order on the affected portion of the operation.

#### *B. Pattern of Violations*

The proposal prescribes the criteria and procedures used by MSHA to determine whether a pattern of violations exists at a mine for purposes of section 104(e) of the Federal Mine Safety and Health Act of 1977 (Act). It addresses mines where operators habitually allow the recurrence of violations of mandatory safety or health standards which significantly and substantially (S&S) contribute to the cause and effect of mine safety or health hazards.

Commenters expressed concern that the language in the proposal is too broad and would encompass a greater portion of the mining community than was intended by Congress in the Mine Act. They suggested that the rule should be more narrow and limited to recalcitrant mine operators who have "thumbed their noses at the law."

The initial screening section of the proposed rule describes the review process MSHA would use to initially select mines for evaluation for a pattern of violations under § 104.3. One commenter stated that the annual review of the compliance records would be too long and suggested it be changed to biannual. Commenters stated that the proposed rule simply sets out a list of factors which are to be considered by the agency in deciding whether a pattern of violations exists at a particular mine and suggested that there should be a more objective quantitative approach using comparative statistical analysis to define a pattern. Commenters are also concerned that there is no criteria

provided for the inspectors to use to determine which violations are S&S. Since the primary criteria being used to determine a pattern of violations are S&S violations, commenters feel there should be a definition for S&S violations in the rule and that it be defined as it was by the Review Commission in the National Gypsum case. Commenters also suggested that only S&S violations which are associated with more than a degree of ordinary negligence be considered. Commenters stated that if MSHA uses past history as part of the initial screening, the time period should be limited to 2 years. One commenter suggested that if MSHA can use retroactive selection criteria, then the operators should be granted retroactive appeal rights to challenge the S&S provision of all applicable violations. Several commenters suggested that only S&S citations issued after the effective date of the rule be considered in the initial screening to determine a pattern of violations. Commenters suggested that the only 107(a) orders that should be used in the pattern development are those that are accompanied by a 104(a) S&S citation. Commenters suggested that accidents, illnesses and injuries should not be a part of the criteria for initial screening unless there is a direct relationship between the S&S violations and the accident.

The proposal would allow only final citations and orders to be used to identify mines with a potential pattern of violations. Commenters were in agreement with this new provision. However, commenters felt that an additional provision should be added that would only include final citations and orders that are issued after the effective date of this rule. Commenters stated that they would have contested past citations and orders for S&S violations if they had known the violations could ultimately contribute to a "pattern" finding.

The proposal provides notification procedures which would provide both the mine operator and miners' representatives an opportunity to respond to the Agency's evaluation that a pattern of violations may exist at a mine. Commenters suggested that the identification and evaluation must be done on a national level as opposed to the district level and suggested that "District Manager" be replaced with "Administrator" in this section. They stated that Congress intended that the sanctions be applied to those few mine operators who repeatedly thumb their noses at the law, and this can only be achieved on a national level. Commenters further suggested that, due

to the profound effect that the pattern violator status could have on an operator's ability to continue to mine, the final determination should be rendered by the Assistant Secretary. Commenters suggested that, because the sanctions associated with a pattern of violations notice are severe, the procedures leading to the issuance of a notice should be fair and should provide all parties with ample time to make their points. Specifically, an opportunity for a hearing should be provided before the pattern of violations notice is issued but after the district manager conference has been held. One commenter suggested that the proposal include criteria to specify how MSHA would determine whether a program has effectively reduced the occurrence of S&S violations. The commenter further noted that although the proposal requires the district manager to submit a report if a potential pattern of violation exists at the mine, it does not require a report if the operator's program has effectively reduced the occurrence of S&S violations. The commenter stated that a report should be required in such instances. One commenter suggested allowing a conference with the Assistant Secretary before a final determination is made. This would provide all interested parties the opportunity to arrive at an agreement to improve the health and safety at the mine. Another commenter stated that

while the proposed procedures, with extended timeframes, appear properly designed to facilitate due process, an opportunity to appeal the issuance of the notice should also be provided.

The proposal also provides procedures for termination of a pattern notice. Commenters are concerned that the only way a pattern of violations notice can be terminated is when an inspection of the entire mine by MSHA results in no S&S violations. Commenters suggested that the notice be terminated when an inspection by MSHA results in no S&S violations in the area of the mine involved in the pattern. Commenters further suggested that only S&S violations of the same standard should be used in a determination not to terminate a pattern of violations notice. Commenters also suggested that district managers should be allowed to terminate pattern of violation notices when mitigating circumstances are present.

One commenter does not feel that mine operators should be afforded the opportunity to use partial inspections to avoid full abatement of S&S violations in the entire mine, stating that the existence of S&S violations is not a normal and acceptable situation in any mine. The commenters stated that operators under notice cannot claim that they should still be allowed to have some S&S violations in order to remain equivalent with operators that have

never been pattern violators. Another commenter stated that conditions in an underground mine change rapidly and suggested that the length of time for a series of partial inspections be limited to 30 days. Other commenters agreed with the new provision of partial inspections; however, they feel that mine operators should have the right to request personnel from a different field or district office to perform the final inspection from those that performed the initial inspection.

Commenters are concerned that the cost of the proposal is inaccurate. Several commenters believe that MSHA failed to include the additional cost of litigation. They stated that the potential litigation costs of citations and orders may be staggering. These same commenters suggested that many operators in the past only weighed the cost of appeal against the payment of the fine and accepted the significant and substantial check off rather than go through the long and costly process of appeal. Many believe that if such action ultimately contributes to a "pattern" finding, many significant and substantial citations would have been contested.

Dated: October 18, 1989.

William J. Tattersall,

*Assistant Secretary for Mine Safety and Health.*

[FR Doc. 89-24718 Filed 10-18-89; 8:45 am]

BILLING CODE 4510-43-01

**DEPARTMENT OF LABOR****Mine Safety and Health Administration****30 CFR Part 104****RIN 1219-AA04****Pattern of Violations****AGENCY:** Mine Safety and Health Administration, Labor.**ACTION:** Final rule.

**SUMMARY:** This final rule establishes criteria and procedures for identifying mines with a "pattern of violations" of mandatory standards that significantly and substantially contribute to safety or health hazards. The rule implements section 104(e) of the Federal Mine Safety and Health Act of 1977 (Mine Act). Congress established this provision to bring into compliance mines where operators habitually allow violations of standards to occur, resulting in serious safety or health hazards.

**EFFECTIVE DATE:** October 1, 1990.

**FOR FURTHER INFORMATION CONTACT:** Patricia W. Silvey, Director, Office of Standards, Regulations, and Variances, MSHA; room 631; Ballston Tower No. 3; 4015 Wilson Boulevard; Arlington, Virginia 22203; phone (703) 235-1910.

**SUPPLEMENTARY INFORMATION:****I. Background**

On May 30, 1989, MSHA published a proposed rule that would establish criteria for the identification of mines with a "pattern of violations" of mandatory standards that significantly and substantially contribute to safety or health hazards (54 FR 23156).

On October 19, 1989, MSHA published a notice in the *Federal Register* which outlined major issues raised by commenters to the proposed rule and scheduled public hearings (54 FR 43028). Public hearings were held on November 1, 1989, in Pittsburgh, Pennsylvania, and on November 8, 1989, in Denver, Colorado. A transcript of each proceeding was made available for public inspection. Following the hearings, MSHA allowed commenters to submit supplementary statements and data until the record closed on December 22, 1989.

This rulemaking implements section 104(e) of the Mine Act. Congress drafted this provision to focus attention on mines that have a serious safety and health management problem. These mines are characterized by repeated "significant and substantial" (S&S) violations of mandatory health and safety standards that the operator merely abates when cited, without taking effective steps to prevent the

recurrence of similar violations. Congress considered the enforcement provisions of the Mine Act's predecessor legislation, the Federal Coal Mine Health and Safety Act of 1969 and the Metal and Nonmetallic Mine Safety Act of 1986, inadequate to break such a cycle of violation, citation, and abatement without restoring the mine to a safe and healthful work place for the miners. As a means to address this situation, Congress added a new provision to the Mine Act, section 104(e), which authorizes MSHA to impose stringent sanctions on mines that develop a "pattern of violations."

Section 104(e) requires that a notice be issued to a mine operator if the mine has a pattern of violations of mandatory standards that could significantly and substantially contribute to health or safety hazards at the mine. Once a section 104(e) pattern notice is issued, the statute requires that any inspection within 90 days that reveals another S&S violation must result in an order to withdraw all persons from the affected area of the mine until the violation is abated. MSHA must issue withdrawal orders for subsequent S&S violations until an inspection of the entire mine reveals no S&S violations. A withdrawal order requires all miners to be removed from the area affected by the violation and prohibits entry into the area, with the exception of persons assigned by the operator to abate the hazard caused by the violation.

The legislative history of the Mine Act<sup>1</sup> emphasizes that the provisions of section 104(e) are intended for use at mines with a record of repeated S&S violations and where the other enforcement provisions of the statute have not been effective in bringing the mine into compliance with Federal health and safety standards. The Mine Act does not define "pattern of violations," but rather authorizes the Secretary to make such rules as necessary to establish criteria for determining when a pattern exists.

The need for a pattern of violations provision in the Mine Act became apparent to Congress in its investigation of the Scotia Mine disaster which occurred in March 1976. The Scotia Mine had a chronic history of persistent dangerous violations that were cited by the inspector and abated by the operator. The operator, however, would then permit the mine to lapse back into violation, exposing the miners to the

same risks all over again. The Senate Committee report stated that Congressional drafters intended section 104(e) of the Mine Act to be "an effective tool to protect miners when the operator demonstrates his disregard for the health and safety of miners through an established pattern of violations." (Leg. Hist. at 620). The Committee viewed the pattern notice as an indication:

... to both the mine operator and the Secretary that there exists at that mine a serious safety and health management problem, one which permits continued violations of safety and health standards. The existence of such a pattern should signal to both the operator and the Secretary that there is a need to restore the mine to effective safe and healthful conditions and that the mere abatement of violations is insufficient. (Leg. Hist. at 621).

MSHA's initial rulemaking to implement section 104(e) of the Mine Act began on August 15, 1980, with the publication of a proposed rule to establish criteria for identifying mines which have a pattern of violations (45 FR 54656). In response to the proposal, numerous commenters stated that the resolution of litigation then pending before the Federal Mine Safety and Health Review Commission (Review Commission) involving how to interpret the S&S provisions of the Mine Act was a critical precedent to the establishment of meaningful pattern of violations regulations. Prior to this time, MSHA had cited all violations as S&S, except technical violations and violations that posed only a remote or speculative risk of injury. In April 1981, the Review Commission narrowed the concept of S&S violations by defining them as violations that have a reasonable likelihood of resulting in a reasonably serious injury or illness (*Secretary of Labor v. Cement Division, National Gypsum Co.*, 3 FMSHRC 822 (1981)). MSHA adopted this revised definition as Agency policy in May 1981. In 1986, the Review Commission also held that the principles of National Gypsum apply to violations of health standards (*Consolidation Coal Co. v. Secretary of Labor*, 8 FMSHRC 890 (1986)).

In addition to these concerns, commenters in 1980 stated that the Agency's then-pending review of the civil penalty regulations could affect provisions of the pattern of violations proposal. In May 1982, MSHA revised its regulations for the assessment of civil penalties. Other commenters criticized the 1980 proposal as complex, too statistically oriented and vague.

In February 1985, MSHA announced its withdrawal of the 1980 proposal and

<sup>1</sup> S. Rep. No. 95-181, 95th Cong., 1st Sess. 33 (1977) reprinted in "Legislative History of the Federal Mine Safety and Health Act of 1977," [hereafter "Leg. Hist."] Subcomm. on Labor of the Comm. on Human Resources, 95th Cong., 2nd Sess. 820 (1978).

gave an advance notice of a proposed rulemaking (ANPRM), intended to address many of the concerns expressed (50 FR 5470). The 1985 ANPRM established the major concepts for this rulemaking; the notice stated that MSHA believed that issuance of a section 104(e) pattern of violations notice should be an enforcement tool reserved for chronic violators who do not respond to other efforts by MSHA to bring their mines into compliance with health and safety standards. MSHA stated that the regulation should focus on the safety and health record of each mine, rather than on strictly quantitative comparisons of mines to industry-wide norms. The Agency further indicated that it planned to develop simplified criteria to identify the existence of a pattern, coupled with procedures for fair and full notice, including an opportunity for the affected parties to respond to the Agency's initial evaluation that a pattern of violations may exist at a mine. The May 1989 proposal and this final rule reflect the importance MSHA attaches to these concepts.

MSHA's enforcement program is directed at gaining compliance with mandatory safety and health standards. The 1977 Mine Act requires the Agency to inspect all surface mines twice a year and all underground mines four times a year. If, during the course of any inspection, an MSHA inspector discovers violations of the law or regulations, the mine operator receives a citation. The purpose of MSHA's enforcement action is to prevent unsafe or unhealthful working conditions and to correct unsafe or unhealthful conditions when they occur.

The most frequently used enforcement action is a section 104(a) citation. MSHA may issue such citations for violations of the Mine Act, violations of mandatory health or safety standards, or violations of other rules and regulations issued under the Mine Act. The inspector issuing the citation provides the operator a reasonable time to correct the violation. At the close of an inspection, or sooner if necessary, the MSHA inspector meets with the mine operator and the miners' representative to discuss any violations found and to ensure that both labor and management have a full understanding of the safety and health conditions at the mine. In most instances, if an increasing number of violations are found during an inspection, the inspector notifies the operator of the problem during this conference. MSHA might suggest that the operator take such remedial actions as increasing education and training activities or

requesting engineering assistance from MSHA's Office of Technical Support.

For a mine with identifiable compliance difficulties, MSHA increases its inspector presence at the mine, possibly sending in specialists in such areas as ventilation or electrical equipment to assess the problem. The mine operator can also expect to see an increase in civil penalty assessments if the problems recur.

If an inspector determines in a follow-up inspection that a mine has failed to abate a section 104(a) violation within the time set in the original citation, and if the inspector determines that the time period for abatement should not be extended, the inspector issues a closure order under section 104(b) of the Mine Act. The closure order applies to the area affected by the violation and prohibits anyone, except for individuals needed to correct the condition and certain other individuals, from entering the area until the violation has been abated.

Another enforcement tool available to MSHA is the section 104(d) citation and closure order for an operator's unwarrantable failure to comply with a mandatory standard. An inspector issues a 104(d) citation when a significant and substantial violation of a mandatory safety or health standard results from the unwarrantable failure of the operator to comply with the standard. MSHA considers unwarrantable failure to mean aggravated conduct, constituting more than ordinary negligence by the operator. After an MSHA inspector issues an unwarrantable failure citation, closure orders follow under these conditions: (1) during the same inspection or during any subsequent inspections within 90 days after issuance of the citation when an inspector finds another violation of a health or safety standard and (2) the violation was caused by an unwarrantable failure to comply.

The closure sanctions of the section 104(d) order are broader than the 104(b) closure sanction. The 104(b) closure order applies to the area affected by the single violation. After MSHA issues an unwarrantable failure citation and subsequent closure order, the mine operator will continue to receive withdrawal orders for subsequent unwarrantable failure violations issued anywhere in the mine. These closure orders continue until there has been a full mine inspection with no unwarrantable failure violations. This escalation of sanctions under section 104(d) reflects the need for a stronger remedial tool aimed at an operator who

knew or should have known that a significant and substantial violation existed, or who failed to abate the violation because of indifference or a lack of due diligence or reasonable care. As with 104(a) violations, a continuing number of 104(d) orders may also lead to increased civil penalties.

Implementation of the pattern of violations provision in section 104(e) will provide MSHA with a means to gain remedial action from mine operators who have not responded to the Agency's other enforcement efforts. MSHA believes that the statutory requirement to withdraw all persons from the area of the mine affected by an S&S violation until the violation is abated will provide an effective incentive for an operator to restore safe and healthful conditions at the mine. The Agency realizes that the statutory requirements for terminating a pattern of violations sequence place a great burden on the operator of the mine. An inspection of the entire mine, particularly a large underground mine, that reveals no violations of a significant and substantial nature may be difficult to achieve. For this reason, MSHA expects to reserve the use of the section 104(e) sanctions for mines where the operator has not responded to an escalating series of enforcement actions by the Agency. Any operator to whom MSHA issues a pattern notice should, by then, have experienced sufficient Agency enforcement action to have readily foreseen implementation of the procedures of this final rule.

## II. Discussion of Final Rule

### A. General Discussion

This final rule includes the following elements: a statement of purpose and scope; procedures for initial identification of mines that may be developing a pattern of violations; criteria for determining whether a pattern of violations exists at a mine; notification procedures that provide both the mine operator and miners' representatives an opportunity to respond to the Agency's evaluation that a pattern of violations may exist at a mine; and procedures for termination of a pattern notice.

The issues most often raised by the commenters throughout this rulemaking have been MSHA's enforcement practices concerning S&S violations and the definition of key terms contained in the rule. Because S&S violations form the basis of a pattern of violations, several commenters stated that a more uniform application of the criteria for determining what violations are S&S is

needed in MSHA's enforcement activities. These commenters suggested that the criteria for S&S violations be defined in the rule as it was by the Review Commission in the National Gypsum case, and that the criteria for unwarrantable violations be defined as it was by the Commission in *Emery Mining Corp. v. Secretary of Labor*, 9 FMSHRC 1997 (1987).

MSHA agrees that application of the pattern of violations provision must be consistent with the definition of terms established by the Review Commission and adopted by the Agency. However, MSHA does not believe that it is either appropriate or necessary to define the terms "significant and substantial" or "unwarrantable" in this rule.

The terms "significant and substantial" and "unwarrantable" have application beyond the scope of section 104(e) and the part 104 regulations. If these terms were defined in the rule and subsequent case law modified or changed the current definitions of these terms, confusion could result. Therefore, to avoid this confusion, consistent adherence with prevailing case law will continue to be the practice of the Agency, particularly as it relates to section 104(e).

In accordance with prevailing case law, each violation must be independently evaluated by inspectors to determine whether the circumstances warrant the violation's designation as S&S or unwarrantable. Any criteria that are based, in part, on subjective evaluation, as application of the terms "S&S" and "unwarrantable" must be, may result in some variation in how they are applied. However, the Agency has been working, and will continue to work, with its inspectors toward a consistent application of principles for determining whether violations are S&S or unwarrantable.

#### *B. Section-by-Section Discussion*

##### *Section 104.1 Purpose and Scope*

This section sets out the purpose and scope of the pattern of violations rule. It states that the pattern of violations criteria and procedures in part 104 address those mines with an inspection history of recurrent significant and substantial violations that demonstrate an operator's disregard for the health and safety of miners. It sets the purpose of these provisions to be the restoration of safe and healthful conditions at such mines. These statements are derived from the Senate Committee report which clearly expresses Congress' intent to protect miners from continued violations of safety and health standards. The committee reports and floor debates in

the Mine Act's legislative history make it clear that Congress directed the pattern of violations enforcement provisions at the few mine operators who repeatedly violate the law. In particular, Congress focused its attention on mines where citations or orders are issued for S&S violations which are abated but continue to recur without mine management taking effective preventive measures. MSHA believes that Congress intended the pattern sanctions to be directed at restoring safe and healthful mine conditions rather than merely at the closure of mines.

Although section 104(e) does not define "pattern of violations," the legislative history gives some general guidance on the kinds of situations to which the provision should apply. The Senate Committee stated its intent that:

A pattern may be established by violations of different standards, as well as by violations of a particular standard. Moreover, while the Committee considers that a pattern is more than an isolated violation, a pattern does not necessarily mean a prescribed number of violations of predetermined standards nor does it presuppose any element of intent or state of mind of the operator. (Leg. Hist. at 621).

Section 104.1 is consistent with this legislative background. Some commenters, however, suggested further clarification of the scope and purpose of part 104, indicating that the rule should state its intended application to only "recalcitrant" operators. MSHA notes that the floor debates on pattern include references to "... [the] few [operators] who repeatedly thumbed their noses at the law." (Leg. Hist. at 1071.) Obviously, any operator who allows health and safety conditions to deteriorate into repeated S&S violations shows an attitude of recalcitrance. However, the inclusion of factors such as an operator's recalcitrance are too suggestive of a specific state of mind requirement. As noted above, Congress did not necessarily intend a pattern to suggest any particular element or state of mind of the operator. In practice, however, MSHA agrees with the underlying premise of the commenters and views a notice of a pattern as an enforcement mechanism to be used when other enforcement tools fail to improve the health and safety conditions at a mine.

##### *Section 104.2 Initial Screening*

The final rule describes the review process MSHA will use to initially select mines to be evaluated for the existence of a potential pattern of violations. As discussed more fully below, mines identified through initial screening under

§ 104.2 will be evaluated further under the criteria set out in § 104.3 of this part.

Under the final rule, the compliance record of each mine will be examined to determine whether there are indications of the recurrent presence of problems that threaten miner safety and health. The final rule specifies that MSHA will review the compliance records of mines at least annually. Some commenters stated that an annual review is inadequate, given that mining conditions can change quickly. These commenters urged that MSHA conduct an initial screening of each mine semiannually or even quarterly.

Under the final rule, one screening per mine per year is the minimum review the Agency will undertake. The Agency believes that this interval will normally be sufficient for the majority of mines. In cases where an operator's compliance record warrants more frequent review, the rule provides the Agency the flexibility to examine the operator's compliance record as often as necessary to ensure that the mine is not developing a pattern of violations.

The final rule does not specify the period of a mine's history to be examined during the initial screening process. In general, evaluation of a mine's compliance records for a period of 2 years will provide an informative, relevant perspective of safety and health conditions. In some cases, however, interruptions in mining operations, changes in mine management or ownership, or other factors could indicate that this period should be longer or shorter. In such instances, MSHA will determine, on a case-by-case basis, the period of a mine's compliance record to examine.

Some commenters stated that the initial screening should involve a comparison of a mine's compliance record for the current 12-month period to the compliance record of the preceding 12 months. Commenters stated that this comparison would give a more accurate representation of a mine's overall compliance history and would reflect whether a mine's level of safety and health was improving or deteriorating during the 2-year period. The Agency has not included such a specific procedure in the final rule. However, distinct trends in a mine's compliance history over a period of time may be relevant to the determination of whether an operator has established a potential pattern of violations. Such trends will be taken into account during initial screening, or in the application of the pattern criteria under § 104.3 of this part, as appropriate.

Paragraph (a) indicates that MSHA will examine each mine's history of S&S violations, withdrawal orders for failure to abate S&S violations, and withdrawal orders for conditions posing an imminent danger to miners. Some commenters stated that the initial screening process should focus on S&S violations that are associated with more than an ordinary degree of negligence and that imminent danger withdrawal orders should not be considered unless they are related to a violation of a standard. Other commenters stated that MSHA should consider only those violations which are clearly repetitive or indicative of a particular type of hazard.

The final rule retains the proposed factors. Consideration of these factors will best enable MSHA to identify those mines with recurrent safety or health management problems. Violations which are designated S&S, if they continue to occur, indicate an unsafe or unhealthful working environment. Repeated withdrawal orders issued for failure to abate S&S violations reflect inadequate attention on the part of the operator to correcting unsafe or unhealthful conditions. Imminent danger withdrawal orders are issued for conditions or practices that could reasonably be expected to cause death or serious physical harm before the conditions or practices could be abated.

Paragraph (b) of the rule sets out four additional factors which will be considered by MSHA in the initial screening process. The final rule does not require that a particular number or combination of these factors be found in order to identify a potential pattern of violations. This is consistent with the Agency's decision to thoroughly evaluate the safety and health record of each individual mine, rather than to apply rigid numerical guidelines to determine whether the issuance of a pattern notice is appropriate.

Under paragraph (b)(1), MSHA will consider what enforcement measures the Agency has applied at the mine, other than those initiated under section 104(e). For example, if repeated S&S violations of a standard have occurred, the Agency will take into account whether the Mine Act's "unwarrantable failure" provisions have been used. This factor recognizes that, in the enforcement scheme of the Mine Act, Congress intended the pattern provisions to be reserved for operators who are unresponsive to the other statutory enforcement measures.

Paragraph (b)(2) specifies that MSHA will consider whether there is evidence of the mine operator's lack of good faith in correcting the problem or problems that result in repeated S&S violations.

Perfunctory abatement of S&S violations without correction of the underlying causes indicates disregard for compliance with safety and health standards. The Agency will focus on determining if enforcement activities at the mine have broadened beyond those expected for the operation. Examples may include whether any one or more of the following actions occurred: meetings held between MSHA officials and the operator failed to result in improved compliance; the Agency found it necessary to increase inspector presence at the mine; or increases were requested in the special assessments for violations.

Under paragraph (b)(3), MSHA will consider the mine's accident, injury or illness record. The Agency will look particularly at those mines having incidence rates above the average for that type of operation, or that have been found to under-report accidents, injuries or illnesses, indicating either intentional concealment of problems or a serious management problem. Injuries, fatalities, or occupational illnesses among the work force should place a mine operator on notice of a need for greater attention to the mine's safety or health programs. This should be reflected in the compliance history.

Paragraph (b)(4) provides for consideration of whether mitigating circumstances exist. This factor takes into account, in the assessment of the cause of repeated violations, causes which are beyond an operator's control even through diligent compliance efforts. This factor is consistent with directing the Mine Act's pattern provisions at improving compliance at mines where repeated S&S violations result from an inadequate commitment by mine management to achieving and maintaining compliance with safety and health standards.

Some commenters stated that the factors contained in paragraphs (b)(2) through (b)(4) have no basis in the legislative history of section 104(e) of the Mine Act and should not be included in the final rule. The Agency, however, believes that consideration of these factors will assist in the preliminary evaluation of an operator's compliance record and will enable the Agency to identify those operators whose compliance histories warrant closer scrutiny under the criteria of § 104.3.

A number of commenters stated that the initial screening factors do not provide adequate notice to operators of the specific number or combination of citations and orders which would cause an operator to be identified through initial screening as having a potential pattern of violations. Commenters

suggested a variety of specific statistical screening mechanisms, including comparison of a mine's rate of violations with an industry-wide average.

Although the Agency has considered such a scheme, MSHA believes that the initial screening criteria will allow identification of those mines which are in a recurrent cycle of violation and abatement with no correction of the underlying circumstances giving rise to the violations. Additionally, the final rule is consistent with the legislative history of section 104(e), which stresses that a pattern of violations does not necessarily mean a specific number of violations of any particular standard.

The initial screening factors are coupled with procedures affording parties full and fair notice of the Agency's initial determination that a potential pattern may exist at a mine. Application of these procedures will ensure that operators are made aware well in advance of the circumstances giving rise to the issuance of a pattern notice and will have a reasonable opportunity to address these circumstances prior to the issuance of a pattern notice.

A number of commenters stated that fairness requires prospective application of the initial screening process. The Agency agrees. Paragraph (c) provides that only citations and orders, whether final or non-final, issued after the effective date of the rule, will be considered in the initial screening process. MSHA believes that this approach will provide clear notice to mine operators of the citations and orders to be used in identifying those mines to be evaluated under the pattern criteria of § 104.3.

#### *Section 104.3 Pattern Criteria*

The final rule establishes the criteria MSHA will apply to identify mines with a potential pattern of violations. Comments on the proposal indicated some misunderstanding among commenters about how these criteria relate to the initial screening procedures in § 104.2. The final rule clarifies this relationship by underscoring the purpose and scope of part 104. It states that the pattern criteria will be applied only after initial screening reveals that the operator may continually allow the recurrence of S&S violations of mandatory safety standards or health standards. Thus, § 104.2 and § 104.3 establish a two-step approach to identifying mines with a potential pattern of violations: (1) initial screening to identify those mines which may exhibit a serious compliance problem, and (2) application of the pattern criteria

to those mines identified through initial screening to determine which, if any, of these mines demonstrate a potential pattern of violations.

The final rule retains the three proposed criteria for establishing a potential pattern of violations. These criteria focus on the mine's history of repeated S&S violations. However, MSHA has not adopted the recommendations of commenters that MSHA consider unrelated S&S violations in identifying a pattern. Instead, MSHA has retained the proposed approach and will consider only S&S citations which are linked together in one of three ways: (1) violations of the same standard; (2) violations of standards related to the same hazard; or (3) violations resulting from the operator's unwarrantable failure to comply. Violations falling into these categories are the best indicators of a mine's serious safety or health management problem. Further, MSHA believes that most repeated S&S violations will fall into one of the categories, especially categories 2 and 3. MSHA will independently evaluate each category, and a pattern evident in any single category will be sufficient for the Agency to consider issuing a notice of pattern.

Commenters stated that the proposed pattern criteria were vague and that operators would not know how to avoid conduct that would result in a pattern notice. Some commenters suggested that the pattern criteria should include consideration of the mine's accident experience and that a correlation between violations and accidents be established. Other commenters suggested comparison of the number of S&S violations to other factors, such as the national average of S&S violations, inspection days, and hours worked. To establish a pattern, these commenters suggested that the mine's rate of S&S violations be some percentage above the national average. Commenters also suggested that the criteria be modified to permit consideration of "unwarrantable failure" violations only where a current unwarrantable failure cycle is in effect at the mine.

The final rule does not adopt the commenters' suggestions. The legislative history of section 104(e) directs that the pattern criteria will "necessarily have to be broad enough to encompass the varied mining activities within the Act's coverage." (Leg. Hist. at 621). Limiting application of section 104(e) of the Mine Act by accident experience and current unwarrantable failure cycles would unduly restrict the Agency's ability to use the pattern mechanism as

envisioned by Congress. Congress clearly intended the pattern notice and the unwarrantable failure mechanism to be available to MSHA as separate enforcement tools. One cannot be contingent upon the other. Regarding the suggested correlation between violations and reportable accidents and injuries at the mine, the screening criteria acknowledge the relevance of accidents, injuries and illnesses to a pattern of violations regulation. However, as stated in the preamble to the proposal, MSHA is unable to precisely link S&S violations to the occurrence of accidents and injuries, except when they involve an accident. Individual health violations are likewise difficult to directly link with the development of occupational illnesses. In addition to being potentially unworkable, this approach would be inconsistent with the preventive purposes of the Mine Act. Finally, numerical comparisons are not mandated by section 104(e); the legislative history of section 104(e) states that " . . . pattern does not necessarily mean a prescribed number of violations of predetermined standards . . ." (Leg. Hist. at 621).

One commenter also stated that the pattern criteria should consider the size of the operation. The commenter indicated that larger operations would tend to have more S&S violations and thus would be at greater risk of receiving a pattern notice. The final rule does not distinguish between large and small mining operations. The legislative history of section 104(e) does not support any distinction between large and small operations in establishing a pattern. In the Agency's view, Congress intended section 104(e) to be used against any operation demonstrating disregard for the health and safety of miners, regardless of size. However, § 104.2(b)(4) allows mitigating factors to be considered in the initial screening process. Size of the operation may be determined to be such a mitigating factor, along with other variables, such as severe geologic conditions.

The pattern criteria are broad enough to encompass varied mining situations while maintaining the focus of section 104(e) on repeated S&S violations. Also, the rule avoids triggering a pattern notice based on a predetermined number of violations of particular standards. Therefore, a quantity of violations that might constitute a pattern at one mine may be insufficient to trigger a pattern notice at another. In order to avoid inequities regarding which mines are placed on a pattern, the Agency must make ample provision for

due process when applying the broad framework established by Congress in section 104(e). Before MSHA issues a pattern notice, § 104.4 of the final rule provides that MSHA must notify operators of the conduct that MSHA believes constitutes a pattern. Operators then will have an opportunity to correct this conduct or to present information to MSHA as to why such conduct does not constitute a pattern. Additionally, MSHA will continue to evaluate the pattern criteria as experience with section 104(e) increases.

Under paragraph (b) of the final rule, MSHA will consider only final citations and orders when identifying mines with a potential pattern of violations. Some commenters objected to this approach in the proposal, while others agreed. The commenters who objected stated that there is no support in the legislative history for consideration of only final citations and orders. They were concerned that operators would be motivated to challenge every S&S citation and order, thus delaying application of the pattern criteria. The commenters who agreed with the proposed approach requested that MSHA consider only final citations and orders issued after the effective date of the pattern rule. These commenters stated that the decision to contest the majority of citations and orders is made by operators on the basis of a business decision that weighs the cost of appeal against the payment of the fine, rather than strictly on the merits of the citation or order. According to the commenters, the use of citations and orders issued prior to this rule to support a pattern notice would not have been a factor in the operator's past evaluation of whether to challenge these actions.

The final rule specifies that MSHA will consider only citations and orders issued after the effective date of the rule that have become final to identify mines with a potential pattern of violations. MSHA believes that this approach will provide clear notice to mine operators of which citations and orders will be considered in identifying mines with a potential pattern of violations. Proper notice of which citations and orders will be used to identify mines with a potential pattern is of paramount importance given the extraordinary nature of the pattern notice.

MSHA will continue to evaluate non-final citations and orders in the initial screening conducted under § 104.2 of this part. Also, MSHA has not adopted the suggestion of commenters that only final citations and orders issued within certain time periods, such as the 24 months prior to the initial screening, be

considered in applying the pattern criteria. In the Agency's view, time frames such as these would unduly restrict the Agency's ability to enforce section 104(e) if an operator demonstrates disregard for the health and safety of miners through an established pattern of violations lasting longer than 2 years. In order to be an effective enforcement mechanism, the pattern criteria must be broad enough to encompass situations involving lapse of time between related S&S violations. However, the Agency believes that, in practice, most violations considered under the pattern criteria will normally have been issued within the preceding 2 years.

#### *Section 104.4 Issuance of Notice*

The final rule describes the procedures MSHA will follow when a potential pattern of violations has been identified. Due to the significance of pattern closure sanctions, the final rule provides ample notice to the mine operator prior to the issuance of such a notice, as well as meaningful opportunities to present the Agency with information as to why MSHA should not issue the pattern notice.

Under paragraph (a) of the final rule, the local District Manager will notify the mine operator in writing that a potential pattern of violations has been identified and will provide a copy of the notification to the representative of miners at the mine. The notification will include the basis for identifying the mine as having a potential pattern of violations and the time frame within which the mine operator may respond to the notification. The Agency intends that, in all cases, the operator be given a reasonable opportunity to respond. However, recognizing that potentially dangerous conditions may exist at the mine, the final rule limits the time for response to 20 days. Also, depending on the circumstances at the mine, the District Manager may set a shorter period.

In addition to giving the mine operator an opportunity to review all documents upon which the pattern of violations evaluation was based during the time for responding to a notification that a potential pattern of violations has been identified, the final rule allows the operator to provide additional information and to request a conference with the District Manager. If a conference is requested, the rule specifies that the conference be held within 10 days of the request. Also, the miners' representative must be notified of the conference and be given an opportunity to participate. A commenter suggested that although miners'

representatives may be allowed to participate, they will generally be unable to do so because they are not paid to attend the conferences. Therefore, the commenter recommended that any information provided by the operator be in writing unless, as a precondition to requesting a conference, the operator agrees to reimburse the miners' representative for lost wages.

The final rule does not adopt the recommendation of the commenter. In the Agency's view, requiring the operator to provide pay to the miners' representative as a precondition to a conference falls outside the scope of the enforcement authority provided by section 104(e). Additionally, MSHA believes that such a precondition may unduly restrict the operator's opportunity to be heard prior to the issuance of a pattern notice. Where miners' representatives cannot participate in a conference, the Agency will make a reasonable effort to secure the representatives' comments.

Another commenter stated that no reason exists for providing an opportunity for input from mine operators or the representative of miners prior to the issuance of a pattern notice. In the commenter's view, the citations and orders issued to the operator for repeated S&S violations provide ample notice that the operator could be placed on a pattern of violations. Other commenters supported the opportunity to specifically address MSHA's reasons for identifying a mine as having a pattern prior to a notice being issued. The Agency views the opportunity for a full and fair notice to all parties involved prior to issuance of a pattern of violations notice to be an important feature of an effective pattern of violations rule. This opportunity for input applies to both mine operators and representatives of miners.

During the period permitted for response to notification of a potential pattern of violations, the operator also may institute a program at the mine to avoid further repeated S&S violations. If the operator implements such a program, the final rule authorizes the District Manager to allow additional time to determine whether the operator's program is effectively reducing the occurrence of S&S violations at the mine. Under the final rule, the period of evaluation may not exceed 90 days, and the representative of the miners must be given an opportunity to discuss the program with the District Manager.

Some commenters objected to this provision in the proposal, stating that it would allow operators to avoid being issued a notice of a pattern of violations.

Other commenters, however, supported the opportunity to implement a program at the mine for avoiding S&S violations. MSHA continues to believe that the preventive purpose of the Mine Act is best served by encouraging an opportunity for the operator to undertake the measures necessary to restore a safe and healthful working environment at the mine. In MSHA's view, a sound safety and health program developed and adopted by the mine operator most effectively reduces S&S violations and fulfills the objectives of section 104(e).

A commenter recommended that the 90-day period for the District Manager's evaluation of the operator's program be structured so that the District Manager is granted authority to give no more than two 30-day extensions after an initial 30-day evaluation period. In the commenter's opinion, a 90-day period for evaluation may be too long in some cases. This suggested approach was not adopted in the final rule. Instead, the final rule allows the District Manager to set the evaluation period based on the circumstances at each mine, and periods shorter than 90 days can be specified as necessary. Also, the period of evaluation can be terminated at any time by the District Manager if the program is not achieving its purpose.

Another commenter was concerned that an operator may reduce the number of repeated S&S violations by implementing a program but return to the pattern after a determination is made not to issue a pattern notice. A commenter also suggested that if an operator is identified as having a pattern of violations for a second time, a pattern notice should be issued without the benefit of the procedures of this section. The final rule adequately addresses both of these situations. If an operator resumes the practice that gave rise to the issuance of the original notification of a pattern of violations, a new notice could be issued to the operator based on the circumstances that resulted in the original notice, as well as the operator's most recent conduct. In determining whether to allow the operator another 90-day period to implement a program to reduce S&S violations, the District Manager would take into consideration the operator's performance following the previous notification.

Under the final rule, the determination as to whether a pattern of violations notice should be issued will be made by the Administrator. Paragraph (b) describes the procedures for submitting information to the Administrator to be used in determining if a pattern exists. Under paragraph (b), the District

Manager will submit a report to the Administrator if the District Manager continues to believe that a pattern exists after the operator is afforded the procedures of paragraph (a). The District Manager's report is required within 120 days from the notification of a potential pattern of violations at the mine. As discussed below, a copy of the report will be provided to the mine operator and representative of miners before being submitted to the Administrator. Both parties will have the opportunity to comment on the report within 10 days of receipt.

Paragraph (c) requires the Administrator to issue a decision as to whether a pattern of violations notice will be issued within 30 days of receipt of a report from the District Manager. MSHA will provide a copy of the Administrator's decision to both the operator and the representative of the miners. Under paragraph (d), the operator must post notification of a pattern of violations at the mine.

Several commenters stated that the time frames for issuance of a notice of a pattern of violations are too short. The Agency recognizes that the time frames outlined in this section require prompt action by all parties involved. However, given the seriousness of the safety and health risks when the mine is identified as having a potential pattern of violations, the time frames specified are reasonable and provide ample opportunity for the operator to present facts to the Agency as to why the pattern notice should not be issued.

A commenter objected to the proposal, indicating that it would allow the District Manager 120 days to issue the report to the Administrator, even if a program to reduce S&S violations is not implemented at the mine. In the commenter's view, this amount of time is excessive. After consideration of this comment, the final rule specifies that where a program to reduce S&S violations has not been implemented, a report must be submitted to the Administrator within 60 days of the issuance of the notification that a potential pattern of violations exists.

One commenter suggested that the District Manager's report be submitted to the operator and the representative of the miners for review prior to being sent to the Administrator. The commenter indicated that this procedure would allow the District Manager to submit the report and comments from the parties to the Administrator at the same time, thereby ensuring that the Administrator evaluates the report and comments simultaneously. The commenter stated that otherwise, if the report were to be submitted to the Administrator before

the comments from the parties, the Administrator may already have formed an opinion regarding the issuance of a pattern notice by the time the comments are received. The Agency believes that allowing the Administrator the opportunity to review the information submitted by all parties at the same time would be beneficial. Accordingly, the final rule allows the operator and miners' representative 10 days to comment on the District Manager's report before the report is sent to the Administrator.

Several commenters recommended that the application of the pattern of violations criteria should be by the Administrator and that the decision to issue a notice of a pattern be made by the Assistant Secretary. Other commenters stated that an operator should have the right to appeal the decision to issue a pattern notice before it goes into effect or have a right to request a conference with the Secretary of Labor. MSHA has not adopted these suggestions. The Agency believes that the District Manager is in the best position to know and evaluate the conditions at the mines within the district and therefore is in the best position to know what enforcement activities have been directed at a particular operation and how successful those efforts have been at improving compliance. Additionally, MSHA believes that the Administrator is in the best position to ensure that the provisions of the final rule are consistently and evenly implemented throughout the nation.

With regard to establishing further routes of administrative appeal within the Agency, it is MSHA's view that the procedures set out in the final rule provide a full opportunity for all parties to express their concerns and that additional review at higher levels within the Agency or Department is unnecessary. Insofar as further review outside of the Agency is concerned, operators who contest the issuance of a section 104(e) withdrawal order before the Federal Mine Safety and Health Review Commission may challenge, in the same proceeding, the issuance of the underlying pattern notice.

A commenter stated that a report should be written even if a decision is made by the District Manager not to recommend placing a mine on a pattern of violations. After consideration of the comment, the final rule does not incorporate this suggestion. A District Manager's decision not to recommend issuance of a pattern notice can be presumed to be based on improved compliance at the mine. The operator's compliance record at the mine will

document this improvement. Therefore, MSHA believes that there is no need to issue a report in such circumstances.

A commenter noted that the proposal specified no time limit for how long the notice of a pattern should remain posted at the mine. The final rule clarifies that the notice must remain posted during the entire period the mine is on the pattern of violations sequence.

#### *Section 104.5 Termination of Notice*

The final rule reflects the Mine Act's requirement of termination of a pattern notice after an MSHA inspection of the entire mine finds no S&S violations. The final rule also clarifies the proposal. Consistent with the Mine Act, it specifies that an order must be issued to establish a pattern cycle within 90 days after issuance of a pattern notice. If no order is issued during the 90-day period, the pattern notice will terminate, regardless of whether a clean inspection of the entire mine occurs during the 90 days. The final rule also retains the proposed provision regarding operator requests for an inspection of the entire mine or a portion of the mine and defines what constitutes an inspection of the entire mine.

The latter provisions are included in paragraph (b) of the final rule. As in the proposal, an operator may request an inspection of the entire mine or a portion of a mine. Partial inspections covering the entire mine within 90 days will constitute an inspection of the entire mine for purposes of terminating a pattern notice. The concept of combining a series of partial inspections to compose a complete inspection of the mine is consistent with the decision of the U.S. Court of Appeals for the District of Columbia Circuit interpreting the section 104(d) unwarrantable failure provision in *UMWA v. FMSHRC*, 768 F.2d 1477 (D.C. Cir. 1985).

A commenter objected to the 90-day period for tying together a series of partial inspections, suggesting instead that since conditions in a mine can change rapidly a more appropriate time would be 30 days. The final rule does not adopt the suggested 30-day period. As stated in the preamble to the proposal, MSHA believes the 90-day period included in the final rule is appropriate since it is consistent with the period specified in sections 104(d) and 104(e) of the Mine Act for placing an operator on the withdrawal order sequence.

Also consistent with the Mine Act, MSHA will give no advance notice of an inspection or partial inspection. Thus, while an operator may request an inspection under the final rule, there will

be no indication from MSHA as to when the inspection will occur. Additionally, the final rule retains the proposed provision that the scope of all inspections will be determined by MSHA. Therefore, although an operator may request only a partial inspection of the mine, MSHA maintains the right to visit additional areas during the inspection.

Some commenters suggested that this section be modified to permit termination of the pattern notice in specific areas of a mine. Alternatively, commenters stated that the rule should permit termination of the pattern notice for the entire mine when specific hazards which resulted in the original issuance of the notice have been eliminated. The commenters also suggested that the operator be permitted to request inspections focusing only on these hazards. According to the commenters, such procedures would encourage correction of the problems leading to a pattern.

The final rule does not include these suggestions. The Mine Act clearly establishes that an inspection which results in the termination of a pattern notice must be of the entire mine. Section 104(e) also states that operators are subject to withdrawal orders until an inspection of the mine in its entirety discloses no S&S violations of any standards. Additionally, no support is found in the legislative history for issuing or terminating a pattern notice for portions of a mine or for particular hazards. Congress stated its belief that a pattern notice indicates a serious safety and health management problem and that the purpose of such a notice is therefore to signal a need to restore the mine to effective safe and healthful conditions. In the Agency's view, a pattern notice must be applied to and terminated for an entire mine in order to fulfill this congressional mandate.

Commenters also suggested that operators should have the option of requesting an inspection by personnel from a different district than the one in which the mine is located. This comment was also not incorporated into the final rule. While the final rule does not prohibit use of inspectors from other districts, the Agency believes that local inspectors will be the MSHA personnel most familiar with the mine and with the factors which led the Agency to issue the pattern notice. In addition, MSHA must retain the ability to allocate inspection resources efficiently and without such a potential restriction.

Other comments indicated that the final rule should specify that the pattern notice will terminate if a mine is sold or otherwise changes ownership while the

mine is under a pattern sequence. Although the final rule does not incorporate this suggestion, the Agency agrees that, under most circumstances, a pattern notice should not remain in effect if mine management changes. In the Agency's view, Congress intended section 104(e) to enable MSHA to address mines with serious safety and health management problems. Therefore, under normal circumstances, if mine management changes, the new management should not be presumed to have the same inability or unwillingness to manage compliance with applicable safety and health standards as the previous mine management. This view is consistent with the application of section 104(e) to mine operators at particular mine sites and not to the mines themselves. Thus, when mine management changes while a pattern notice is in effect, MSHA will consider, on a case-by-case basis, terminating a pattern notice in order to allow the new mine management to demonstrate to MSHA its ability to provide to miners at the mine a safe and healthful workplace.

### III. Executive Order 12291 and Regulatory Flexibility Act

In accordance with Executive Order 12291, MSHA has prepared a final analysis to identify potential costs and benefits associated with part 104. This analysis has formed the basis for the final Regulatory Flexibility Analysis required by the Regulatory Flexibility Act. In this analysis, MSHA has determined that the final rule would not result in major cost increases nor have an incremental effect of \$100 million or more on the economy. Therefore, the rule does not meet the criteria for a major rule and a Regulatory Impact Analysis is not required.

The benefits of the final rule are the fatalities, injuries, and illnesses that will be prevented by more timely compliance with existing Federal health and safety standards. MSHA believes that one fatality can be prevented annually in coal mines and one fatality can be prevented every 2 years in metal and nonmetal mines. MSHA also believes that 216 lost workday injuries and 84 nonlost workday injuries can be prevented annually in coal mines and 132 lost workday injuries and 64 nonlost workday injuries can be prevented annually in metal and nonmetal mines. These benefit estimates do not include the potential benefits resulting from improved safety at mines that do not receive a pattern notice. They also do not include any quantitative measure of the potential health benefits.

MSHA estimates that about 100 coal mines (about 2 percent of all coal mines)

and 80 metal and nonmetal mines (less than 1 percent of all metal and nonmetal mines) will be affected by this rule. These estimates represent the mines that would be identified by initial screening. The number of mines actually issued a pattern of violations notice would be less.

MSHA estimates that the annual cost of compliance will be about \$854,300. All of the costs of this rule are associated with § 104.4, issuance of notice. This section has five distinct areas of costs to the mine operator as follows: (1) Reviewing the pattern notice, (2) requesting a conference with the MSHA District Manager, (3) instituting a corrective program, (4) losing production and profits due to a mine closure, and (5) additional citation litigation. Coal mines will incur \$649,100 of the total amount, which averages about \$6,500 per affected mine. Metal and nonmetal mines will incur \$205,200 of the total amount, which averages about \$2,550. Mines actually placed on a pattern would incur costs well above the average, largely due to lost production revenue.

The Regulatory Flexibility Act requires that agencies evaluate and include, wherever possible, compliance alternatives that minimize any adverse impact on small businesses. For purposes of the Regulatory Flexibility Act, MSHA has defined small business entities as mines with fewer than 20 employees. In this final rule, MSHA has not exempted small mines from any provision. The rule will likely affect small mines to a lesser degree than large mines because small mines, on average, are likely to have fewer safety and health hazards per mine to correct than large mines. Should an entire section of a small mine be forced to close temporarily, however, its compliance cost on a per-mine basis would be higher than the costs to close temporarily a section of a large mine because the large mines can more easily shift employees to other tasks than can a small mine.

MSHA estimated that of the \$649,100 incurred by coal mines, \$460,500 will be spent by large coal mines, about \$6,600 per affected mine, and \$188,600 will be spent by small coal mines, about \$6,300 per affected mine. Of the \$205,200 incurred by metal and nonmetal mines, \$158,400 will be spent by large metal and nonmetal mines, or about \$2,650 per affected mine, and \$46,800 will be spent by small metal and nonmetal mines, or about \$2,350 per affected mine.

**IV. Paperwork Reduction Act**

This final rule contains no information collection requirements subject to the Paperwork Reduction Act of 1980.

**List of Subjects in 30 CFR Part 104**

Mine safety and health, Pattern of violations.

Dated: July 25, 1990.

William J. Tattersall,

*Assistant Secretary for Mine Safety and Health.*

Accordingly, a new part 104 in a new subchapter Q in chapter I, title 30 of the Code of Federal Regulations is added to read as follows:

**SUBCHAPTER Q—PATTERN OF VIOLATIONS****PART 104—PATTERN OF VIOLATIONS**

Sec.

104.1 Purpose and scope.

104.2 Initial screening.

104.3 Pattern criteria.

104.4 Issuance of notice.

104.5 Termination of notice.

Authority: 30 U.S.C. 814(e), 957.

**§ 104.1 Purpose and scope.**

This part establishes the criteria and procedures for determining whether a mine operator has established a pattern of significant and substantial (S&S) violations at a mine. It implements section 104(e) of the Federal Mine Safety and Health Act of 1977 (Act) by addressing mines with an inspection history of recurrent S&S violations of mandatory safety or health standards that demonstrate a mine operator's disregard for the health and safety of miners. The purpose of the procedures in this part is the restoration of effective safe and healthful conditions at such mines.

**§ 104.2 Initial screening.**

At least once each year, MSHA shall review the compliance records of mines. MSHA's review shall include an examination of the following:

(a) The mine's history of—

(1) Significant and substantial violations;

(2) Section 104(b) of the Act closure orders resulting from significant and substantial violations; and

(3) Section 107(a) of the Act imminent danger orders.

(b) In addition to the compliance records listed in paragraph (a) of this section, the following shall also be considered as part of the initial screening:

(1) Enforcement measures, other than section 104(e) of the Act, which have been applied at the mine.

(2) Evidence of the mine operator's lack of good faith in correcting the problem that results in repeated S&S violations.

(3) An accident, injury, or illness record that demonstrates a serious safety or health management problem at the mine.

(4) Any mitigating circumstances.

(c) Only citations and orders issued after October 1, 1990, shall be considered as part of the initial screening.

**§ 104.3 Pattern criteria.**

(a) The criteria of this section shall be used to identify those mines with a potential pattern of violations. These criteria shall be applied only after initial screening conducted in accordance with § 104.2 of this part reveals that the operator may habitually allow the recurrence of violations of mandatory safety standards or health standards which significantly and substantially contribute to the cause and effect of mine safety or health hazards. These criteria are—

(1) A history of repeated significant and substantial violations of a particular standard;

(2) A history of repeated significant and substantial violations of standards related to the same hazard; or

(3) A history of repeated significant and substantial violations caused by unwarrantable failure to comply.

(b) Only citations and orders issued after October 1, 1990, and that have become final shall be used to identify mines with a potential pattern of violations under this section.

**§ 104.4 Issuance of notice.**

(a) When a potential pattern of violations is identified, the District Manager shall notify the mine operator in writing. A copy of the notification shall be provided to the representative of miners at the mine. The notification shall specify the basis for identifying the mine as having a potential pattern of violations and give the mine operator a reasonable opportunity, not to exceed 20 days from the date of notification, to take the following steps:

(1) Review all documents upon which the pattern of violations evaluation is based.

(2) Provide additional information.

(3) Submit a written request for a conference with the District Manager. The District Manager shall hold any such conference within 10 days of a request. The representative of miners at the mine shall be provided an opportunity to participate in the conference.

(4) Institute a program to avoid repeated significant and substantial violations at the mine. The District Manager may allow an additional period, not to exceed 90 days, for determining whether the program effectively reduces the occurrence of significant and substantial violations at the mine. The representative of miners shall be provided an opportunity to discuss the program with the District Manager.

(b) If the District Manager continues to believe that a potential pattern of violations exists at the mine, a report of the evaluation made under this part shall be sent to the appropriate MSHA Administrator. This report shall be submitted no more than 120 days from the notification to the operator and miners' representative under paragraph (a) of this section. Alternatively, in cases where no program to reduce S&S violations has been implemented at the mine, the report shall be submitted no more than 60 days from such notification. A copy of the report shall be provided to the mine operator and the miners' representative 10 days before the report is sent to the Administrator. Both parties will have 10 days from receipt of the report to submit written comments to the Administrator.

(c) Within 30 days of receipt of a report from a District Manager, the Administrator shall issue a decision as to whether the mine is to be issued a notice of a pattern of violations. A copy of the decision shall be provided to the mine operator and the representative of the miners.

(d) The mine operator shall post all notifications issued under this part at the mine. A notice of a pattern of violations shall remain posted at the mine until such notice is terminated under § 104.5 of this part.

**§ 104.5 Termination of notice.**

(a) Termination of a section 104(e)(1) of the Act pattern of violations notice shall occur when an inspection of the entire mine by MSHA finds no significant and substantial violations or if no withdrawal order is issued by MSHA in accordance with section 104(e)(1) of the Act within 90 days of the issuance of the pattern notice.

(b) The mine operator may request an inspection of the entire mine or portion of the mine. No advance notice of the inspection shall be provided, and the scope of inspection shall be determined by MSHA. Partial mine inspections covering the entire mine within 90 days shall constitute an inspection of the entire mine for the purposes of this part.

[FR Doc. 90-17750 Filed 7-27-90; 8:45 am]

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Westlaw

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**H**

United States Court of Appeals,  
District of Columbia Circuit.  
EAGLE BROADCASTING GROUP, LTD., Appel-  
lant  
v.  
FEDERAL COMMUNICATIONS COMMISSION,  
Appellee.

No. 08-1066.  
Argued Jan. 8, 2009.  
Decided April 28, 2009.

**Background:** Broadcasting company appealed from an order of the Federal Communications Commission (FCC), 2008 WL 170621, denying its petitions for reconsideration of decisions determining that the company's broadcast license had expired due to the failure to broadcast for one year and dismissing the company's request for license renewal.

**Holdings:** The Court of Appeals, Edwards, Senior Circuit Judge, held that:

(1) unauthorized and unlicensed transmissions were not adequate to avoid license termination under section of Telecommunications Act providing that a broadcast station license would expire if the broadcasting station failed to transmit broadcast signals for any consecutive 12-month period, and  
(2) FCC did not abuse its discretion in refusing to reinstate company's license.

Affirmed.

West Headnotes

**[1] Administrative Law and Procedure 15A**  
⚡763

**15A Administrative Law and Procedure**  
**15AV Judicial Review of Administrative Deci-**  
**sions**

**15AV(D) Scope of Review in General**  
**15Ak763 k. Arbitrary, Unreasonable or**  
**Capricious Action; Illegality. Most Cited Cases**

Normally, an agency action would be "arbitrary and capricious" if the agency has relied on factors which Congress has not intended it to consider, entirely failed to consider an important aspect of the problem, offered an explanation for its decision that runs counter to the evidence before the agency, or is so implausible that it could not be ascribed to a difference in view or the product of agency expertise. 5 U.S.C.A. § 706(2)(A).

**[2] Administrative Law and Procedure 15A**  
⚡502

**15A Administrative Law and Procedure**  
**15AIV Powers and Proceedings of Administra-**  
**tive Agencies, Officers and Agents**  
**15AIV(D) Hearings and Adjudications**  
**15Ak502 k. Stare Decisis; Estoppel to**  
**Change Decision. Most Cited Cases**

Under the Administrative Procedure Act (APA) arbitrary and capricious standard of review of an administrative agency decision, an agency may not treat like cases differently. 5 U.S.C.A. § 706(2)(A).

**[3] Administrative Law and Procedure 15A**  
⚡502

**15A Administrative Law and Procedure**  
**15AIV Powers and Proceedings of Administra-**  
**tive Agencies, Officers and Agents**  
**15AIV(D) Hearings and Adjudications**  
**15Ak502 k. Stare Decisis; Estoppel to**  
**Change Decision. Most Cited Cases**

An agency's unexplained departure from precedent must be overturned as arbitrary and capricious. 5 U.S.C.A. § 706(2)(A).

**[4] Telecommunications 372** ⚡1094

**372 Telecommunications**  
**372V Television and Radio Broadcasting**  
**372k1091 License or Permit in General**  
**372k1094 k. Renewal and Revocation.**

563 F.3d 543, 385 U.S.App.D.C. 334, 47 Communications Reg. (P&F) 925  
(Cite as: 563 F.3d 543, 385 U.S.App.D.C. 334)

#### Most Cited Cases

Unauthorized and unlicensed transmissions by broadcasting company were not adequate to avoid license termination under section of the Telecommunications Act providing that a broadcast station license would expire if the broadcasting station failed to transmit broadcast signals for any consecutive 12-month period. Communications Act of 1934, § 312(g), 47 U.S.C.A. § 312(g).

#### **[5] Telecommunications 372 ↪ 632**

##### 372 Telecommunications

##### 372I In General

##### 372k627 Administrative Procedure in General

372k632 k. Findings and Orders; Effect of Decisions. Most Cited Cases

Unchallenged staff decisions are not Federal Communications Commission (FCC) precedent, and agency actions contrary to those decisions cannot be deemed arbitrary and capricious.

#### **[6] Telecommunications 372 ↪ 1094**

##### 372 Telecommunications

##### 372V Television and Radio Broadcasting

##### 372k1091 License or Permit in General

##### 372k1094 k. Renewal and Revocation.

##### Most Cited Cases

Federal Communications Commission (FCC) did not abuse its discretion in refusing to reinstate broadcasting company's broadcast license which expired for failure to transmit broadcast signals for a consecutive 12-month period, despite company's claim that it believed it had obtained a license for an alternate site from which it had transmitted signals during the relevant period; company never received approval for alternate site from FCC or Federal Aviation Administration (FAA), FCC found company never offered convincing explanation to support claim of good faith belief that it was acting with authorization, and company received numerous warnings from FCC about risk of expiration. Communications Act of 1934, § 312(g), 47 U.S.C.A. § 312(g).

**\*544** Appeal of an Order of the Federal Communications Commission. Howard M. Weiss argued the

cause for appellant. With him on the briefs were Peter Tannenwald and Davina S. Sashkin.

Daniel M. Armstrong, Associate General Counsel, Federal Communications Commission, argued the cause for appellee. With him on the brief were Matthew B. Berry, General Counsel, Joseph R. Palmore, Deputy General Counsel, and Pamela L. Smith, Counsel.

Before: ROGERS and BROWN, Circuit Judges, and EDWARDS, Senior Circuit Judge.

Opinion for the Court filed by Senior Circuit Judge EDWARDS.

EDWARDS, Senior Circuit Judge.

**\*\*335** In 1996, Congress passed § 403 of the Telecommunications Act of 1996, Pub.L. No. 104-104, 110 Stat. 56 ("the Telecommunications Act"), which amended the Communications Act of 1934, 47 U.S.C. § 151 *et seq.* ("the Act"). Section 403, as enacted in 1996, added a new subpart (g) to § 312 of the Act, providing in relevant part:

If a broadcasting station fails to transmit broadcast signals for any consecutive 12-month period, then the station license granted for the operation of that broadcast station expires at the end of that period, notwithstanding any provision, term, or condition of the license to the contrary.

47 U.S.C. § 312(g) (1996). In 2004, after the occurrence of the events giving rise to this case, Congress added the following language to the provision:

except that the Commission may extend or reinstate such station license if the holder of the station license prevails in an administrative or judicial appeal, the applicable law changes, or for any other reason to promote equity and fairness.

47 U.S.C. § 312(g) (2004).

At issue in this case is a decision by the Federal Communications Commission ("FCC" or "Commission") declaring that the broadcast license of Eagle Broadcasting Group, Ltd. ("Eagle") had expired pursuant to § 312(g). Eagle was licensed to operate radio station KVEZ(FM) from a site known as "Black Peak" (the "Black Peak site") but ceased broadcast-

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ing in June 2001 due to interference and land use issues. The FCC granted Eagle a temporary license to operate from its studio, but the station again went silent on December 20, 2002. Subsequently, Eagle applied to the Commission for a construction permit to broadcast from a new site in the Buckskin Mountains (the “Buckskin site”), but it failed to obtain the necessary clearance from the Federal Aviation Administration (“FAA”) and the FCC. Eagle then failed for 12 consecutive months to resume broadcasting from its licensed site at Black Peak.

When the FCC determined that Eagle had not resumed broadcasting as of December 20, 2003, it declared that Eagle’s license had expired pursuant to § 312(g). Eagle protested, arguing that its license had not expired because it had transmitted broadcast signals from the Buckskin site in November 2003. Eagle contended that it did not matter that its broadcast transmissions from the Buckskin site were unauthorized\*\*336 \*545 The FCC rejected Eagle’s petitions for reconsideration. Pointing to § 301 of the Act, the Commission noted that the Act clearly prohibits any person from transmitting broadcast signals except with a license granted by the Commission. The FCC therefore held that Eagle’s unauthorized broadcasts from the Buckskin site were insufficient to avoid the strictures of § 312(g). See *Eagle Broadcasting Group, Ltd.*, 23 F.C.C.R. 588 (2008) [hereinafter, *Order*].

Eagle’s principal argument on appeal is that the station did “transmit broadcast signals” within the meaning of § 312(g) before the one-year deadline. Eagle argues that Congress would have inserted the word “authorized” in the statute had it intended for the provision to be interpreted as the FCC has interpreted it in this case. According to Eagle, the plain language of the statute allows a station to transmit any signals from any location to avoid the automatic expiration of a license under § 312(g). We disagree. The FCC acted well within its statutory authority and pursuant to reasoned decisionmaking in rejecting Eagle’s claim that unauthorized broadcasts by unlicensed stations are adequate to avoid license termination under § 312(g). And, contrary to Eagle’s claims, the FCC’s action was neither arbitrary and capricious nor an abuse of discretion.

## I. BACKGROUND

### A. Statutory and Regulatory Background

Section 301 of the Act bans any person from transmitting signals by radio “except under and in accordance with this chapter and with a license ... granted under the provisions of this chapter.” 47 U.S.C. § 301. The Act defines broadcasting as the “dissemination of radio communications intended to be received by the public.” *Id.* at § 153(6).

Prior to the enactment of the Telecommunications Act, the Commission addressed “silent stations”—radio stations which were authorized to broadcast but were silent—in one of two ways. The FCC would either grant the station temporary authority to remain off the air if it found such a grant to be in the public interest, or it would initiate a revocation proceeding, which often included lengthy procedural requirements such as an evidentiary hearing. See *Implementation of Section 403(l) of the Telecommunications Act of 1996 (Silent Station Authorizations)*, 11 F.C.C.R. 16,599, 16,599 (1996) [hereinafter, *Silent Station Authorizations*].

In 1996, the Telecommunications Act added a new subsection to the Act, providing for the automatic expiration of a station’s license when it failed to broadcast for 12 months. The new provision stated:

If a broadcasting station fails to transmit broadcast signals for any consecutive 12-month period, then the station license granted for the operation of that broadcast station expires at the end of that period, notwithstanding any provision, term, or condition of the license to the contrary.

47 U.S.C. § 312(g) (1996). After the occurrence of the events giving rise to this case, Congress amended § 312(g) by adding language giving the Commission discretion to “extend or reinstate” a license in order to, *inter alia*, “promote equity and fairness.” See 47 U.S.C. § 312(g) (2004) (amended by Consolidated Appropriations Act, 2005, Pub.L. No. 108-447, 118 Stat. 2809 (2004)).

Because broadcast towers may interfere with air traffic safety, § 303(q) of the Act directs the Commission to mandate broadcast tower safety features, such as “painting and/or illumination,” when “there is a reasonable possibility” that a tower “may \*\*337 \*546 constitute ... a menace to air navigation.” 47 U.S.C. § 303(q). The Commission’s rules provide that an applicant who proposes to construct a broadcast

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antenna with certain specifications must notify the FAA of the proposed construction. *See generally* Construction, Marking, and Lighting of Antenna Structures, 47 C.F.R. § 17.1, *et seq.* (2009). The rules make it clear that:

(a) Effective July 1, 1996, the owner of any proposed or existing antenna structure that requires notice of proposed construction to the Federal Aviation Administration must register the structure with the Commission....

(b) .... [E]ach owner of a proposed structure ... must submit a valid FAA determination of “no hazard.”

....

(d) If a final FAA determination of “no hazard” is not submitted along with FCC Form 854, processing of the registration may be delayed or disapproved.

*Id.* § 17.4.

## B. Facts

Through its owner, Maurice W. Coburn, Eagle acquired control of radio station KVEZ(FM) in 1995. KVEZ(FM) was licensed to operate from a site known as Black Peak in the community of Parker, Arizona, but ceased broadcasting from the site on June 23, 2001 due to interference and land use issues. *See Order*, 23 F.C.C.R. at 589; Letter from Maurice W. Coburn to Secretary of FCC (June 5, 2002), *reprinted in* Joint Appendix (“J.A.”) 145. On February 15, 2002, Eagle filed an application with the FCC for a construction permit to move to the Buckskin site. *See Order*, 23 F.C.C.R. at 589; Application for Construction Permit, J.A. 146.

On April 24, 2002, the Commission's staff (the “Staff”) notified Eagle of a deficiency in the Buckskin site application. *Order*, 23 F.C.C.R. at 589. Eagle had failed to respond to a question that asked for a Commission tower registration number—a number an applicant receives after a FAA determination that the proposed broadcasting facility poses no hazards to air navigation. Because the Buckskin site is within the glide scope of air traffic using the Avi Suquilla Airport in Parker, Arizona, the FCC stated that FAA

approval of the proposed tower was necessary. *Id.* at 594; FCC's Br. at 6. The Staff informed Eagle that “public safety factors required both FAA approval and Commission registration of the tower proposed in the Buckskin Application.” *Order*, 23 F.C.C.R. at 589.

On June 5, 2002, instead of supplying the requested information, Eagle requested special temporary authority (“STA”) to broadcast the signal of KVEZ(FM) from the station's studio in Parker, Arizona. Letter from Maurice W. Coburn to Secretary of FCC (June 5, 2002), J.A. 145. The request explained that the Black Peak broadcast site was no longer available due to interference and land use restrictions. Although a new site had been identified, approval would take more time than Eagle could afford under § 312(g)'s one-year silence deadline; thus, Eagle requested authority to temporarily broadcast from its studio location. *Id.* The Commission granted the STA on June 19, 2002, but reminded Eagle that, because the station had been silent since June 23, 2001, the license would expire as a matter of law if it did not resume broadcasting on or before June 23, 2002. Letter from Edward P. De La Hunt, Associate Chief of FCC Audio Division, to Maurice W. Coburn (June 19, 2002), J.A. 142–43.

On July 10, 2002, Eagle notified the FCC that the station had “recommenced its regular broadcast under the [STA] granted by the [FCC]” and noted that “[a]s FCC files will indicate, KVEZ is awaiting approval of an alternate site, so \*\*338 \*547 that relocation construction can begin.” Letter from Maurice W. Coburn to Edward P. De La Hunt (June 28, 2002), J.A. 141.

However, the STA expired on December 19, 2002, and on December 20, 2002, KVEZ(FM) again went silent. In a letter written that day, Eagle notified the FCC that the station was silent as of noon. The letter reported:

Our reason for going temporarily dark is that we are in the process of moving to our new transmitter site as previously approved by the F.C.C.

While we regret this brief period of darkness, it seems unavoidable under the circumstances. As your files will indicate, we were asked, after the F.C.C. had already cleared us to move, to obtain a

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[clearance] from the FAA (we had been under the impression that such a [clearance] would not be needed). While we filed our request promptly, it took the FAA several months to finally give its OK.

...

We are proceeding with all deliberate speed to make the required upgrade to full power status, at the approved location, but we are requesting permission to remain dark for 30 to 60 days while all necessary construction and installations are completed.

Letter from Maurice W. Coburn to Edward P. De La Hunt (Dec. 20, 2002), J.A. 140.

On January 23, 2003, the Commission again requested that Eagle supplement the incomplete application for the Buckskin site. Letter from Rodolfo F. Bonacci, Supervisory Engineer of FCC Audio Division, to Eagle (Jan. 23, 2003), J.A. 138. Specifically, the letter requested that Eagle register the proposed antenna structure with the Commission, and reminded Eagle that FAA approval was "necessary in order to obtain FCC antenna structure registration." *Id.* The FCC advised that action on the application would be withheld until Eagle responded. Finally, it warned that Eagle's failure to respond would "result in the dismissal of the application" pursuant to a Commission rule which allows an application to be dismissed for failure to respond to an official request for additional information. *Id.* at 139; see 47 C.F.R. § 73.3568(a)(1).

Eagle still failed to respond with documentation of FAA approval. Instead, Eagle sent a series of letters to the FCC implying that FAA approval had either been obtained or was unnecessary. For example, on February 26, 2003, Eagle wrote another letter reporting on the "progress in moving KVEZ to its new approved site." Letter from Maurice W. Coburn to Edward P. De La Hunt (Feb. 26, 2003), J.A. 137. The letter noted: "As you will no doubt recall, after your office approved of our new transmitter-antenna site, it took several months to get clearance from the FAA and then LaPaz County. We are working with all due diligence to complete the move and installation." *Id.*

Additionally, on November 24, 2003, Eagle noti-

fied the FCC that the station had "completed its installation of a new transmitter and antenna at the previously approved site [n]orth of the city of license, Parker, Arizona." Letter from Maurice W. Coburn to Edward P. De La Hunt (Nov. 24, 2003), J.A. 136. The letter stated:

We are pleased to inform the Commission that 15:30 hours on November 22, 2003, marked the resumption of regular broadcasting activities of KVEZ-FM in Parker, Arizona.

...

**\*548 \*\*339** The patience and assistance of your Staff throughout our many relocation problems is most appreciated.

*Id.*

And finally, on November 26, 2003, Eagle wrote to the Commission and stated that the FAA had informed Eagle that "since the station antenna site was not within the flight path of the Parker area airport, and not of significant height to either be lighted or painted with the orange/white pattern, that no special authorization was required." Email from Jerry Hale, Consultant to Eagle, to Rodolfo E. Bonacci, Supervisory Engineer of FCC Audio Division (Nov. 26, 2003), J.A. 134-35.

By reply sent on December 9, 2003, the Commission requested Eagle to submit a copy of the FAA's letter to "prove what you said below is correct," *i.e.*, that no FAA authorization was necessary. Email from Khoa Tran, FCC to Jerry Hale (Dec. 9, 2003), J.A.134. The letter also notified Eagle that, because the station had been silent since December 20, 2002, the "license is going to expire on 12/20/03." *Id.* Eagle's consultant responded the next day that he would "send a copy of the FAA information this week" and stated that "Mr. Coburn has notified the FCC in writing and by phone, as well as e-mail which I sent that KVEZ FM Parker, Arizona had returned to the air as of November 22, 2003." Email from Jerry Hale to Khoa Tran (Dec. 10, 2003), J.A. 134. The email requested that the FCC "verify that the Commission has received the appropriate notice so that the license will not expire on December 20. If we need to do any additional filings, please advise." *Id.*

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Eagle never submitted any FAA letter or any documentation indicating that it had received “clearance” from the FAA with respect to the Buckskin site application. The Staff contacted the FAA on its own in June 2004 and was informed that the FAA “had no record of receiving any application or issuing any determination for the site specified in the Buckskin Application.” *Order*, 23 F.C.C.R. at 594 n. 35. Rather, the FAA had only “provided an August 7, 2002 determination of no hazard to Eagle for a tower approximately 229 miles away from the Buckskin site.” *Id.* at 594.

In early January 2004, the Staff received a complaint that station KVEZ(FM) was operating from a site the FCC had not approved. *Id.* at 590. On January 28, 2004, the Staff contacted the station for clarification. Email from Glenn Greisman, Industry Analyst for FCC Media Bureau—Audio Division, to Maurice W. Coburn (Jan. 28, 2004), J.A. 133. Eagle was instructed to provide the Commission with a file number to identify any “previously approved site.” *Id.* Maurice Coburn and Eagle’s consultant each telephoned the Staff to report that “the station was operating at the site proposed in the Buckskin application.” *Order*, 23 F.C.C.R. at 590.

The FCC concluded that Eagle had not transmitted from its place of license—the Black Peak site—for over one year. Although Eagle represented that it was once again broadcasting, it was indisputably operating from an unauthorized and unlicensed facility. The Buckskin site application remained pending and Eagle had no authority to transmit broadcast signals away from the Black Peak site. And Eagle had not received FAA approval for operation of a broadcast tower at the Buckskin site. On February 17, 2004, the Staff informed Eagle that the pending Buckskin site application had been dismissed as moot and the call letters (the identifying code letters for the station assigned by the FCC) had been deleted because the underlying license for the Black Peak site had expired as a matter of law on December 21, 2003 pursuant to \*549 \*\*340 § 312(g). Letter from Peter H. Doyle, FCC Audio Division Chief, to Eagle (Feb. 17, 2004), J.A. 130 [hereinafter, Staff Decision]. The Staff Decision explained: “A broadcaster cannot avoid the statutory deadline set forth in § 312(g) by resuming operations, as here, without an authorization, permanent or temporary, from the Commis-

sion.” *Id.* at 131.

Eagle petitioned for reconsideration on March 18, 2004. Petition for Reconsideration (“Reconsideration Petition”), J.A. 113. Eagle subsequently filed a supplement to the Reconsideration Petition in light of Congress’ amendment to § 312(g), noting that “[t]he statute, as amended, now directs the Commission to extend or reinstate broadcast licenses as appropriate ‘to promote equity and fairness.’ ” Supplement to Petition for Reconsideration (“Supplement”), J.A. 24. The Reconsideration Petition, the Supplement, and two other petitions filed by Eagle requesting license renewal were referred to the Commission for review. *Order*, 23 F.C.C.R. at 588.

### C. Order on Appeal

The Commission denied all four petitions. *Order*, 23 F.C.C.R. at 588. First, the Commission disagreed with Eagle’s contention that “unauthorized transmissions are sufficient to avoid the consequences of § 312(g).” *Id.* at 592. The Commission explained:

Section 301 ... provides that no person shall transmit radio signals except in accordance with authority granted by the Commission. It further provides that no license shall be construed to create any right beyond the terms, conditions, and authority of the license. The sanctions set forth in Section 312 enforce these provisions. Section 312(g), which establishes the specific sanction for extended failure to broadcast, cannot be read to create an exception to Section 301 licensing requirements. Indeed, if read to permit unauthorized operation to avoid license expiration, Section 312(g) would encourage violation of Section 301 and defeat its own purpose of ensuring timely construction and operation of authorized facilities that serve the public.

*Id.* Thus, the Commission rejected Eagle’s claim that its unauthorized transmissions from the Buckskin site were sufficient to avoid license termination.

The Commission also rejected Eagle’s assertion that it reasonably believed the transmissions from the Buckskin site were authorized. *Id.* at 593. Eagle claimed that it believed the Staff had erroneously determined that FAA approval was required to construct the proposed tower at the Buckskin site, and that this “mistake” had been resolved. The Commis-

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sion found that Eagle's claim of an innocent mistake was inconsistent with the facts. Noting the number of shifting theories Eagle had presented regarding the issuance of a FAA air hazard determination, the *Order* concluded that "Eagle's claim that it held an authorization to operate at Buckskin is frivolous." *Id.* at 594.

Commission construction permits are written documents. The Commission never issued, and therefore Eagle never received, a construction permit or any other document establishing that the Buckskin application had been granted. To the contrary, as noted above, the staff advised Eagle in writing that the application could not be granted until Eagle supplied tower notification/registration information. Eagle's alleged belief that the application had been granted by the fall of 2003 is also inconsistent with its consultant's contacts with the staff in November and December 2003 to address the FAA-related deficiency that continued to prevent staff action. \*\*341 \*550 Eagle's *pro se* status at that time did not exempt it from complying with Commission rules or statutory provisions.

*Id.* at 594–95.

The *Order* also rejected Eagle's claim that, under FCC case precedent, Eagle should have been assessed a monetary forfeiture, in lieu of license expiration, for unauthorized operations. The FCC distinguished the forfeiture cases cited by Eagle, saying that "Eagle fails to comprehend the critical differences between rule violations and Section 312(g)." *Id.* at 596. The Commission noted that it had "discretion to shape penalties for rule violations," and distinguished the forfeiture cases as inapplicable because "[t]hey do not address Section 312(g), focusing only on other rule violations." *Id.*

Finally, the Commission rejected Eagle's alternative request for discretionary license reinstatement under the amended § 312(g). *Id.* at 599–600. The Commission first noted that Eagle's license expired on December 21, 2003, before the 2004 legislation was enacted. The Commission then concluded that, in any event, Eagle had failed to qualify under the statute for license reinstatement. Eagle had not obtained permission to construct a tower or operate from the Buckskin site, and Eagle's claim that it was "confused" about the status of its permit was not credible.

The Commission also noted that the Staff had warned Eagle about the risk of license expiration under § 312(g). The *Order* characterized Eagle's claim that it had resumed operations at an authorized site as "misleading" and "false." *Id.* at 601.

Eagle raises three central arguments on appeal. First, Eagle asserts that § 312(g), by its plain terms, only prescribes license expiration in cases of utter silence. Because it transmitted from the Buckskin site, Eagle claims that it cannot be said that it "fail[ed] to transmit broadcast signals" for a consecutive 12-month period. Second, Eagle argues that the FCC's action was arbitrary and capricious because the Commission imposed a monetary forfeiture, rather than license expiration, against other similarly situated licensees who operated unauthorized facilities for more than a 12-month consecutive period. Finally, Eagle argues that the FCC should have reinstated its license under the 2004 amendment to § 312(g), which vests the Commission with discretion to reinstate a license that has expired if doing so would "promote equity and fairness." 47 U.S.C. § 312(g).

## II. ANALYSIS

### A. Standard of Review

In order to determine whether the Commission permissibly terminated Eagle's license pursuant to § 312(g), the court applies the familiar two-part test of *Chevron USA Inc. v. Natural Resources Defense Council, Inc.*, 467 U.S. 837, 104 S.Ct. 2778, 81 L.Ed.2d 694 (1984). "*Chevron* instructs us to accord agency interpretations of statutes they administer varying degrees of deference." *Nat'l Ass'n of Clean Air Agencies v. EPA*, 489 F.3d 1221, 1228 (D.C.Cir.2007). Under *Chevron* Step One, the court examines the statute *de novo* in order to determine "whether Congress has directly spoken to the precise question at issue." *Chevron*, 467 U.S. at 842, 104 S.Ct. 2778. If so, "that is the end of the matter; for the court, as well as the agency, must give effect to the unambiguously expressed intent of Congress." *Id.* at 842–43, 104 S.Ct. 2778. However, "if Congress has [not] directly spoken to the precise question at issue," the Court moves on to *Chevron* Step Two. *Id.* at 842, 104 S.Ct. 2778. Under Step Two, "[i]f Congress has explicitly left a gap for the agency to fill, there is an express delegation of authority to the agency to elucidate a specific provision of \*\*342 \*551 the statute by regulation. Such legislative regu-

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lations are given controlling weight unless they are ... manifestly contrary to the statute.” *Id.* at 843–44, 104 S.Ct. 2778. Where, on the other hand, the legislative delegation to the agency is “implicit rather than explicit,” we will uphold any “reasonable interpretation made by the administrator” of the agency. *Id.* at 844, 104 S.Ct. 2778.

[1][2][3] Even when an agency's construction of its statute passes muster under *Chevron*, a party may claim that the disputed agency action is “arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law.” 5 U.S.C. § 706(2)(A).

Section 706(2)(A) of the APA provides that a reviewing court shall “hold unlawful and set aside agency action, findings, and conclusions found to be ... arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law.” 5 U.S.C. § 706(2)(A). This is the APA's “catch-all” provision governing the scope and standards of review, and the courts rarely draw any meaningful distinctions between acts that are “arbitrary, capricious, or an abuse of discretion.” *Block v. Pitney Bowes Inc.*, 952 F.2d 1450, 1454 (D.C.Cir.1992). “[A]rbitrary, capricious, [or] an abuse of discretion” review under § 706(2)(A) is now routinely applied by the courts as one standard under the heading of “arbitrary and capricious” review. And it encompasses both review of the factual basis of an agency's action, see *Citizens to Preserve Overton Park, Inc. v. Volpe*, 401 U.S. 402, 416, 91 S.Ct. 814, 28 L.Ed.2d 136 (1971), and review of an agency's reasoning as distinguished from its factfinding, see *Bowman Transp., Inc. v. Ark.-Best Freight Sys., Inc.*, 419 U.S. 281, 285–86, 95 S.Ct. 438, 42 L.Ed.2d 447 (1974). Moreover, the arbitrary and capricious standard governs review of all proceedings that are subject to challenge under the APA. See *Consumers Union of U.S., Inc. v. FTC*, 801 F.2d 417, 422 (D.C.Cir.1986). Thus, if an action is subject to review under the APA, it does not matter whether it is a formal or informal adjudication or a formal or informal rulemaking proceeding—all are subject to arbitrary and capricious review under § 706(2)(A).

HARRY T. EDWARDS & LINDA A. ELLIOTT, FEDERAL STANDARDS OF REVIEW—REVIEW OF DISTRICT COURT DECISIONS AND AGENCY ACTIONS 167 (2007).

“Normally, an agency [action] would be arbitrary and capricious if the agency has relied on factors which Congress has not intended it to consider, entirely failed to consider an important aspect of the problem, offered an explanation for its decision that runs counter to the evidence before the agency, or is so implausible that it could not be ascribed to a difference in view or the product of agency expertise.” *Motor Vehicle Mfrs. Ass'n of the United States, Inc. v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 43, 103 S.Ct. 2856, 77 L.Ed.2d 443 (1983) (internal quotation marks and citation omitted). Additionally, “an agency may not treat like cases differently.” *Freeman Eng'g Assocs., Inc. v. FCC*, 103 F.3d 169, 178 (D.C.Cir.1997) (internal quotation marks and citation omitted). And “an agency's unexplained departure from precedent must be overturned as arbitrary and capricious.” *Comcast Corp. v. FCC*, 526 F.3d 763, 769 (D.C.Cir.2008).

As noted above, Eagle contends that the FCC “wrongly interpreted 47 U.S.C. § 312(g) to require authorized transmissions in order to avoid expiration of a licence.” Eagle's Br. at 12. Eagle also argues that the FCC's action was arbitrary and capricious because the agency treated Eagle differently than other similarly situated licensees, *id.* at 22, and an abuse of discretion because Eagle's license should \*\*343 \*552 have been reinstated pursuant to the 2004 amendment to § 312(g), *id.* at 27. We find no merit in these claims.

#### B. *Chevron* Step One

[4] Eagle argues that the FCC's decision to cancel Eagle's license pursuant to § 312(g) should be invalidated under *Chevron* Step One, because it is at odds with the plain meaning of the statute. Under *Chevron* Step One, the court applies the traditional tools of statutory construction in order to discern whether Congress has spoken directly to the question at issue. *Chevron*, 467 U.S. at 842–43, 104 S.Ct. 2778. If this “search for the plain meaning of the statute ... yields a clear result, then Congress has expressed its intention as to the question, and deference is not appropriate.” *Bell Atlantic Tel. Cos. v. FCC*, 131 F.3d 1044, 1047 (D.C.Cir.1997).

Eagle argues that § 312(g) only allows for license expiration in the case of utter silence. Eagle was required to resume broadcasting within one year of December 20, 2002—the date that it went silent—

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in order to avoid expiration under § 312(g). The station purported to “resume broadcasting” on November 22, 2003. Focusing on the statutory language “fails to transmit broadcast signals,” Eagle first emphasizes that the Act defines broadcasting as “the dissemination of radio communications intended to be received by the public.” 47 U.S.C. § 153(6). Eagle then argues that “[t]here is no question that [it] operated a radio transmitter and intended that its service be received by the public.” Eagle’s Br. at 9. Thus, according to Eagle, the FCC erred by reading a restriction into the statute that the broadcast must be an *authorized* transmission. Eagle asserts: “Had it intended to say what the FCC believes it intended, Congress could have easily inserted the word ‘authorized’ between ‘transmit’ and ‘broadcast’ in the statute.” Eagle’s Br. at 15. Eagle asks the court to interpret the omission of the word “authorized” as a signal that Congress intended *any* broadcast to count for the purposes of § 312(g).

There is no doubt that § 312(g) does not, by its plain terms, state that unauthorized transmissions are sufficient to avoid expiration pursuant to § 312(g). In other words, the statutory text “fails to transmit broadcast signals” surely does not *plainly* indicate that *unauthorized* and *unlicensed* broadcast transmissions are sufficient to avoid the strictures of § 312(g). The most that can be said is that § 312(g), standing alone, is silent with respect to whether transmissions must be authorized in order to avoid license expiration.

Actually, when § 312(g) is read in context, *i.e.*, as a part of the entire Act, Eagle’s “plain meaning” argument falls apart. *See, e.g., Sierra Club v. EPA*, 551 F.3d 1019, 1027 (D.C.Cir.2008) (stating that the meaning of certain words and phrases must be examined in context as part of the *Chevron* Step One inquiry). Section 301 of the Act positively requires a purported broadcaster to secure a license from the FCC to transmit broadcast signals by radio. 47 U.S.C. § 301. Unlicensed radio transmissions are not recognized under the Act. And nothing in § 312 says otherwise. It is therefore an understatement to say that it strains credulity to suggest that the reference to “broadcast signals” in § 312(g) includes *unauthorized* and *unlicensed* transmissions.

Moreover, Eagle conceded at oral argument that its reading of § 312(g) would allow a station to avoid

expiration by broadcasting from any site, even one that is thousands of miles removed from the authorized location. Recording of Oral Argument at 8:08. In other words, according to Eagle, the company could have avoided license expiration by broadcasting from a site in New York. Section 312(g) cannot be read to plainly dictate this absurd result.

**\*553 \*\*344** Section 312(g) refers only to broadcasters who have a “station license” to transmit radio signals. As the parties acknowledged at oral argument, Eagle’s license was specifically limited to one permissible site of operation—Black Peak. When Eagle failed to transmit from this place of license for more than a year, its license expired by operation of law. Under the statute, unauthorized and unlicensed transmissions are no better than silence. If anything, the plain meaning of § 312(g) says just the opposite of what Eagle contends.

### C. *Chevron* Step Two

Even if we assume that § 312(g) does not admit of “plain meaning” in support of the FCC’s construction, the agency’s interpretation easily survives scrutiny under *Chevron* Step Two. When, as in this case, “the legislative delegation to an agency on a particular question is implicit rather than explicit ... a court may not substitute its own construction of a statutory provision for a reasonable interpretation made by the administrator of an agency.” *Chevron*, 467 U.S. at 844, 104 S.Ct. 2778. We find the FCC’s construction of § 312(g) eminently reasonable.

The FCC reasonably determined that § 312(g) must be read in conjunction with § 301. Section 301 makes clear that broadcast transmissions cannot occur except as authorized by a FCC license. Indeed, a license to broadcast is the “central requirement” of the Act. *Ruggiero v. FCC*, 317 F.3d 239, 245 (D.C.Cir.2003). And § 312(g) creates no exception to § 301. Moreover, as noted above, a FCC license specifies both the licensee’s site and bandwidth. An unauthorized transmission is neither condoned nor recognized by the Act. Rather, it is prohibited. Thus, in assessing a licensee’s rights under § 312(g), the FCC reasonably concluded that an unauthorized transmission counts for nothing.

Eagle’s contention that the FCC’s position in this case is at odds with the Commission’s 1996 order implementing § 312(g), *see Silent Station Authoriza-*

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*tions*, 11 F.C.C.R. 16,599, is not persuasive. It is true that the implementing order does not mention the need to operate from *authorized* facilities to avoid the strictures of § 312(g). This proves nothing, however, because the requirement of authorized transmissions is clear from § 301.

Eagle quotes a portion of the implementing order that states: “[t]he 1996 Act is clear that the relevant period of the silence is that of the *station*. The period is not based on any particular licensee or facility.” Eagle’s Br. at 21 (quoting *Silent Station Authorizations*, 11 F.C.C.R. at 16,601). Eagle argues that this language suggests that the FCC’s focus on the license status of its facilities has no place in a § 312(g) inquiry. But Eagle ignores the next sentence in the implementing order, which states:

Accordingly, the assignment or transfer of a broadcast license, the modification of the licensed facilities, special temporary authorizations to remain silent (STAs), and other transactions will not toll or extend the 12-month period, notwithstanding any provision in any authorization to the contrary. Neither can the Commission prevent the automatic expiration of the license by waiver.

*Silent Station Authorizations*, 11 F.C.C.R. at 16,601. Rather than suggesting that unauthorized transmissions were permissible, the implementing order emphasized that expirations under § 312(g) are mandatory and stressed that not even agency actions could toll the 12-month period.

In sum, the Commission’s interpretation of § 312(g) easily passes muster under *Chevron* Step Two.

**\*554 \*\*345 D. The Commission’s Action Was Not Arbitrary and Capricious**

It is well understood that “an agency’s unexplained departure from precedent must be overturned as arbitrary and capricious.” *Comcast Corp.*, 526 F.3d at 769. Eagle argues that the Commission’s disputed action in this case was arbitrary and capricious, because in other cases involving similar fact patterns the Commission imposed monetary forfeitures against licensees rather than declaring their licenses expired pursuant to § 312(g).

[5] The Commission argues that the cases cited

by Eagle are factually distinguishable, in part because most did not involve applications of § 312(g). In addition, all but one of the cases cited by Eagle were staff decisions and thus had no binding precedential effect. “[U]nchallenged staff decisions are not Commission precedent, and agency actions contrary to those decisions cannot be deemed arbitrary and capricious.” *Id.* at 770.

Only one case cited by Eagle, *Maria L. Salazar*, 19 F.C.C.R. 5050 (2004), involves a decision of the Commission. *Salazar* is inapposite, however, because it did not involve the application or enforcement of § 312(g). Eagle argues that this “misses the point,” because the Commission’s failure to apply § 312(g) in *Salazar* was a *sub silentio* determination that unauthorized transmissions are sufficient to avoid license expiration under § 312(g). Eagle’s Br. at 25. We disagree.

In *Salazar*, the licensee was cited for a host of rule violations, including transmitting from an unauthorized site. However, the record does not indicate that the licensee failed to transmit authorized broadcasts over a stretch of 12 months. In fact, another order in the same case makes clear that the station in *Salazar* was simultaneously transmitting from two locations—one authorized and one unauthorized. *Maria L. Salazar, Notice of Apparent Liability*, 17 F.C.C.R. 14,090, 14,090–91 (2002). Because the station in *Salazar* never ceased transmitting from an authorized location, it was not silent, and the Commission’s imposition of a money forfeiture in that case without a license revocation is in no way inconsistent with the action taken in this case.

**E. The Commission Did Not Abuse its Discretion in Refusing To Reinstate Eagle’s License Under the 2004 Amendment to § 312(g)**

[6] As noted above, the 2004 amendment to § 312(g) vests the Commission with discretion to reinstate a license that has expired if doing so would “promote equity and fairness.” 47 U.S.C. § 312(g). Eagle contends that the Commission abused its discretion in declining to reinstate its license under the 2004 amendment to § 312(g). Assuming, *arguendo*, that the Commission was obliged to apply the 2004 version of § 312(g) when it considered Eagle’s petition for reconsideration, we find no abuse of discretion.

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Eagle claims that there were “mitigating circumstances” that should have caused the Commission to act favorably on its petition for reconsideration. In particular, Eagle cites its “misunderstanding” as to what it would take to obtain authorization for the Buckskin site, lack of counsel to assist in the processing of its applications, and “good faith” mistakes. In Eagle's view, “What we have here is a failure of communication.” Eagle's Br. at 30. We view the record quite differently.

The Commission determined that Eagle never received approval for the Buckskin site from the FAA or from the FCC. And the Commission found that Eagle never offered a convincing explanation to support its claim of a good faith belief that it was acting with authorization. In fact, Eagle's claim that it believed it had obtained a license for the Buckskin site and that the **\*\*346 \*555** FAA approved the site appears to be disingenuous. As the Commission points out, “it does not require legal counsel or any level of sophistication to avoid making false statements on simple matters of fact (such as whether or not an FAA clearance letter existed that would be forwarded to the Commission later in the week).” FCC's Br. at 29. Moreover, the record makes clear that Eagle received a number of warnings from FCC Staff about the risk of expiration under § 312(g). Eagle had fair warning of the rules and had every reason to understand what was required of the company in order to avoid license expiration under § 312(g). In these circumstances, the Commission acted with justification and without abusing its discretion in denying Eagle's petition to reinstate its license.

### III. CONCLUSION

For the reasons stated above, we affirm the Commission's decision invoking § 312(g) to terminate the broadcasting license of Eagle Broadcasting Group, Ltd.

C.A.D.C.,2009.

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**H**

United States Court of Appeals,  
District of Columbia Circuit.  
UNITED MINE WORKERS OF AMERICA, Petitioner,  
v.  
Cecil D. ANDRUS, Secretary of the Interior, Respondent,  
Carbon Fuel Co., Intervenor.

No. 76-1208.  
Argued March 17, 1977.  
Decided May 9, 1978.  
Rehearing Denied May 31, 1978.

Union filed petition for review of an order issued by the Board of Mine Operation Appeals under the Federal Coal Mine Health and Safety Act of 1969. The Court of Appeals, Spottswood W. Robinson, III, Circuit Judge, held that mine operator served with notice of violation of health standard not posing imminent danger could not obtain administrative review of the charge on merits prior to issuance of an order commanding withdrawal of his miners from the affected area.

Reversed and remanded.

West Headnotes

# **[1] Labor and Employment 231H ⚡2674**

## **231H Labor and Employment**

### **231HXV Mines**

#### **231HXV(A) In General**

#### **231Hk2671 Procedure**

#### **231Hk2674 k. Review. Most Cited**

#### **Cases**

(Formerly 232Ak31 Labor Relations, 260k92.5(2), 260k92.6)

On petition for review of an order issued by the Board of Mine Operation Appeals under the Federal Coal Mine Health and Safety Act of 1969, Court of Appeals would deny motion to add Secretary of Labor as respondent, in view of fact that 1977 amend-

ments required that Secretary of Labor be substituted as party only in suits involving investigative functions transferred to the Secretary, and petition for review involved review functions transferred to the Federal Mine Safety and Health Review Commission. Federal Coal Mine Health and Safety Act of 1969, § 2 et seq. as amended 30 U.S.C.A. § 801 et seq.; Federal Mine Safety and Health Amendments Act of 1977, § 301(c)(4), 30 U.S.C.A. § 961(c)(4).

## **[2] Statutes 361 ⚡205**

### **361 Statutes**

#### **361VI Construction and Operation**

#### **361VI(A) General Rules of Construction**

#### **361k204 Statute as a Whole, and Intrinsic Aids to Construction**

#### **361k205 k. In General. Most Cited Cases**

Statutory provisions are to be construed, not in isolation, but together with other related provisions.

## **[3] Statutes 361 ⚡219(4)**

### **361 Statutes**

#### **361VI Construction and Operation**

#### **361VI(A) General Rules of Construction**

#### **361k213 Extrinsic Aids to Construction**

#### **361k219 Executive Construction**

#### **361k219(4) k. Erroneous Construction; Conflict with Statute. Most Cited Cases**

While courts normally accord great weight to administrative construction of the statute administered, such interpretations forfeit their entitlement to deference when they plainly conflict with other indicia of proper interpretation of the statute.

## **[4] Mines and Minerals 260 ⚡92.5(2)**

### **260 Mines and Minerals**

#### **260III Operation of Mines, Quarries, and Wells**

#### **260III(A) Statutory and Official Regulations**

#### **260k92.5 Federal Law and Regulations**

#### **260k92.5(2) k. Coal Mining. Most Cited Cases**

581 F.2d 888, 189 U.S.App.D.C. 110, 1978 O.S.H.D. (CCH) P 22,725  
(Cite as: 581 F.2d 888, 189 U.S.App.D.C. 110)

(Formerly 260k92.6)

Under the Federal Coal Mine Health and Safety Act of 1969, mine operator served with notice of violation of health standard not posing imminent danger could not obtain administrative review of the charge on the merits prior to issuance of order commanding withdrawal of miners from the affected area. Federal Coal Mine Health and Safety Act of 1969, §§ 2 et seq., 105(a) as amended 30 U.S.C.A. §§ 801 et seq., 815(a).

**\*888 \*\*110** Petition for Review of an Order of the Board of Mine Operation Appeals of the Department of Interior. Steven B. Jacobson, Washington, D. C., with whom Harrison Combs, Washington, D. C., was on the brief, for petitioner.

Edwin E. Huddleson, III, Atty., Dept. of Justice, Washington, D. C., with whom Rex E. Lee, Asst. Atty. Gen. and William Kanter, Atty., Dept. of Justice, Washington, D. C., were on the brief, for respondent.

Charles Q. Gage, Charleston, W. Va., for intervenor.

Before McGOWAN, ROBINSON and WILKEY, Circuit Judges.

Opinion for the Court filed by Circuit Judge SPOTTSWOOD W. ROBINSON, III.

**\*\*111 \*889** SPOTTSWOOD W. ROBINSON, III, Circuit Judge:

[1] Once again [FN1] we are confronted by a controversy generated by ambiguity in the Federal Coal Mine Health and Safety Act of 1969. [FN2] The issue on this occasion is whether a mine operator served with notice of violation of a health standard not posing imminent danger could obtain administrative review of the charge on the merits prior to issuance of an order commanding withdrawal of his miners from the affected area. We answer that question in the negative. Our decision is governed by the terms of the 1969 Act notwithstanding its displacement by new legislation in 1977, [FN3] and resultantly our opinion speaks largely to the past.

[FN1] See, E. g., *Association of Bituminous Contractors, Inc. v. Andrus*, No. 75-1931, -- U.S.App.D.C. --, -- F.2d -- (Feb. 22, 1978);

*UMW v. Kleppe*, 174 U.S.App.D.C. 328, 532 F.2d 1403, Cert. denied, 429 U.S. 858, 97 S.Ct. 157, 50 L.Ed.2d 135 (1976); *Phillips v. Interior Bd. of Mine Operations Appeals*, 163 U.S.App.D.C. 104, 500 F.2d 772, (1974), Cert. denied, 420 U.S. 938, 95 S.Ct. 1149, 43 L.Ed.2d 415 (1975); *National Independent Coal Operators Ass'n v. Morton*, 161 U.S.App.D.C. 68, 494 F.2d 987 (1974), Aff'd, 423 U.S. 388, 96 S.Ct. 809, 46 L.Ed.2d 580 (1976).

[FN2] Pub.L. No. 91-173, 83 Stat. 742, 30 U.S.C. ss 801 Et seq. (1970).

[FN3] Late last year Congress passed the Federal Mine Safety and Health Amendments Act of 1977, Pub.L. No. 95-164, 91 Stat. 1290, which supersedes both the Federal Coal Mine Health and Safety Act of 1969 and the Federal Metal and Nonmetallic Mine Safety Act of 1966, Pub.L. No. 89-577, 80 Stat. 772. By then this case had already been submitted to us for decision, and only less than a month ago did the new legislation become effective. Federal Mine Safety and Health Amendments Act of 1977, Pub.L. No. 95-164, tit. III, s 307, 91 Stat. 1322. None of the parties contend, nor does anything uncovered by our independent research suggest, that Congress intended any application whatsoever of the 1977 Act to administrative proceedings long since concluded under its 1969 predecessor, as is the situation here. See *Id.* s 301(c). Compare *Swinton v. J. Frank Kelly, Inc.*, 180 U.S.App.D.C. 216, 218-219, 554 F.2d 1075, 1077-1078, Cert. denied, 429 U.S. 820, 97 S.Ct. 67, 50 L.Ed.2d 81 (1976) with *De Rodulfa v. United States*, 149 U.S.App.D.C. 154, 161, 164-167, 461 F.2d 1240, 1247, 1250-1253, Cert. denied, 409 U.S. 949, 93 S.Ct. 270, 34 L.Ed.2d 220 (1972). See also *United States v. St. Louis, S. F. & T. Ry.*, 270 U.S. 1, 3, 46 S.Ct. 182, 183, 70 L.Ed. 435, 437 (1926); *United States Fidelity & Guar. Co. v. United States ex rel. Struthers Wells Co.*, 209 U.S. 306, 315-317, 28 S.Ct. 537, 540, 52 L.Ed. 804, 807-808 (1908). And although we have no call to construe the 1977 Act itself, our investigation uncov-

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ered nothing in its language or legislative history that modifies our view of how Congress contemplated that the 1969 Act would operate on the matter here in issue. On the contrary, enforcement proceedings under the new Act generally are “patterned on the current Coal Act,” S.Rep. No. 181, 95th Cong., 1st Sess. 12 (1977), (1977) U.S.Code Cong. & Admin.News pp. 3401, 3412, notwithstanding that the 1977 counterparts of the relevant provisions of the 1969 Act are cast in substantially modified language. See Federal Mine Safety and Health Amendments Act of 1977, Pub.L. No. 95-164, tit. II, s 201, 91 Stat. 1300, 1305-1306 (amending Federal Coal Mine Health and Safety Act of 1969, ss 104(a), (b) & 105(d)).

Since the Secretary of the Interior, originally the respondent herein, had delegated his adjudicative responsibilities under the 1969 Act to the Board of Mine Operations Appeals, 43 C.F.R. s 4.500(a) (1976), the decision of the Board is properly the subject of this review. The 1977 Act, however, transferred administrative review to the Federal Mine Safety and Health Review Commission, see Federal Mine Safety and Health Amendments Act of 1977, Pub.L. No. 95-164, tit. II, s 201, 91 Stat. 1305-1306 (amending Federal Coal Mine Health and Safety Act of 1969, s 105(d), 30 U.S.C. s 815(d) (1970)); *Id.* tit. III, s 301(c)(1)-(2), 91 Stat. 1318. The Secretary of the Interior remains as respondent because the new law provides that it “shall not affect suits commenced prior to (its effective date) and in all such suits proceedings shall be had, appeals taken, and judgments rendered, in the same manner and effect as if this section had not been enacted . . .” *Id.* tit. III, s 301(c)(4), 91 Stat. 1319. The only exception is for suits involving investigative functions transferred to the Secretary of Labor, in which case that Secretary is to be substituted as a party. *Id.* Our suit, however, involves administrative review functions transferred to the Federal Mine Safety and Health Review Commission, *Supra*, and we accordingly deny the joint motion of the Secretary of the Interior and the Secretary of Labor to add the Secretary of Labor as a respondent. See also note

58 *Infra*.

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Pursuant to the 1969 Act,[FN4] the Secretary of the Interior promulgated mandatory health and safety standards designed for the protection of coal miners.[FN5] To ensure compliance with those standards, the Mining Enforcement and Safety Administration (MESA), the authorized representative of the Secretary, made frequent inspections of mines.[FN6] If a MESA inspector determined that there was imminent danger from a breach of the standards, he issued a withdrawal order requiring removal of all miners from the imperiled area until the hazard disappeared.[FN7] If, on the other hand, the inspector found disobedience of a standard but no immediate threat to health or safety therefrom, he issued a violation notice fixing a reasonable time for its abatement.[FN8] That period could be extended, but if it was not and if the violation persisted, a withdrawal order then followed.[FN9] Such an order could also emit, even without allowance for an abatement period, when there was an “unwarrantable” but not imminently hazardous failure to comply with the standards.[FN10]

**FN4.** Federal Coal Mine Health and Safety Act of 1969, s 101, 30 U.S.C. s 811 (1970).

**FN5.** 30 C.F.R. ss 70.100 Et seq. (1976).

**FN6.** Federal Coal Mine Health and Safety Act of 1969, s 103, 30 U.S.C. s 813 (1970).

**FN7.** *Id.* s 104(a), 30 U.S.C. s 814(a) (1970).

**FN8.** *Id.* s 104(b), 30 U.S.C. s 814(b) (1970).

**FN9.** *Id.*

**FN10.** *Id.* s 104(c), 30 U.S.C. s 814(c) (1970). The withdrawal order could issue only after the operator had been given two violation notices within a 90-day period and a finding had been made for each violation that it was caused by unwarrantable failure to comply with the Act.

A mine operator aggrieved by either a notice or

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an order could apply for administrative review.[FN11] Any necessary investigation was made, an opportunity for a hearing was provided,[FN12] and review of the administrative decision was available in the courts of appeals.[FN13] The Act specified civil penalties for noncompliance with its provisions or with health or safety standards formulated thereunder,[FN14] as to which the operator had the right to a trial de novo in a district court.[FN15] In the instance of a withdrawal order, the operator could obtain both administrative and judicial review of an inspector's conclusion that an imminently dangerous condition existed.[FN16] The pivotal question on this appeal is whether the operator could also litigate the facts prompting a notice of violation or only the question of the reasonableness of the time allowed for its abatement.

FN11. Id. s 105(a), 30 U.S.C. s 815(a) (1970), quoted in text at note 27 *Infra*.

FN12. Id.

FN13. Id. s 106(a), 30 U.S.C. s 816(a) (1970).

FN14. Id. s 109, 30 U.S.C. s 819 (1970).

FN15. Id. s 109(a)(4), 30 U.S.C. s 819(a)(4) (1970). The new Act may not be so generous. See S.Rep. No. 181, *Supra* note 3, at 46, (1977) U.S.Code Cong. & Admin.News at p. 3445. Under the 1969 Act, issues of fact that were or could have been litigated earlier in review proceedings before a court of appeals were not determinable de novo in the district court.

FN16. Federal Coal Mine Health and Safety Act of 1969, ss 105(a), 106, 30 U.S.C. ss 815(a), 816 (1970).

## II

Carbon Fuel Company, the intervenor here, operates several short-lived mines in the Appalachian region of West Virginia, including one known as No. 6A, 23 Drift Mine.[FN17] That facility is three miles distant from Carbon's central bathhouse, which serves a total of six mines in the area.[FN18] After complaints by miners that, in contravention of the Secre-

tary's regulations, the bathhouse was inconveniently located, a MESA official investigated and issued a notice of violation giving Carbon 30 days to \*891 \*\*113 abate.[FN19] Carbon resorted to administrative review, claiming that the time allotted for abatement was unreasonable and "that any period of time set for the abatement of such invalid Notice would be unreasonable." [FN20]

FN17. Carbon Fuel Co., No. HOPE 75-800 (administrative law judge July 22, 1975), at 4, Joint Appendix (J.App.) 229.

FN18. Id.

FN19. Id. at 4-5, J.App. 229-230.

FN20. Application for Review and Motion to Expedite Hearing and Decision at 2, J.App. 6.

An administrative law judge ruled that he had jurisdiction not only to extend the abatement period but also to vacate the violation notice on the merits, because, in his words, " 'any time for abatement is an unreasonable time if no violation exists.' " [FN21] He then rejected MESA's contention that the bathhouse was not conveniently situated for use by those working in No. 6A, 23 Drift Mine.[FN22] The Board of Mine Operations Appeals affirmed the initial determination on location without any reference to the question of its jurisdiction to dissolve the notice, as opposed to authority merely to pass upon the reasonableness of the time allowed for correction of the alleged violation.[FN23] Petitioner, United Mine Workers of America, then came to this court for further review, attacking both jurisdiction and the decision on the merits.[FN24]

FN21. Carbon Fuel Co., *supra* note 17, at 7, J.App. 232, quoting Freeman Coal Mining Corp., 1 I.B.M.A. 1, 27 (1970).

FN22. Id. at 7-10, J.App. 232-235.

FN23. Carbon Fuel Co., 6 I.B.M.A. 20 (1976).

FN24. Because of our disposition of the jurisdictional issue, we do not reach peti-

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tioner's contention concerning the existence of a violation.

### III

The Federal Coal Mine Health and Safety Act of 1969 set forth in Section 105 the specifications governing administrative review of withdrawal orders and notices of violations.[FN25] Those provisions drew some rather large distinctions in scope between the two. The Secretary was empowered to grant temporary relief from a withdrawal order but not from the consequences of disobeying a violation notice.[FN26] In relevant part Section 105(a)(1) also provided:

FN25. Federal Coal Mine Health and Safety Act of 1969, s 105, 30 U.S.C. s 815 (1970).

FN26. Id.

An operator issued an order . . . or any representative of miners in any mine affected by such order or by any modification or termination of such order, may apply to the Secretary for review of the order. . . . An operator issued a notice . . . or any representative of miners in any mine affected by such notice, may, If he believes that the period of time fixed in such notice for abatement of the violation is unreasonable, apply to the Secretary for review of the notice . . . . (A)n opportunity for a public hearing (shall be provided) at the request of the operator or the representative of miners in such mine, to enable the operator and the representative of miners in such mine to present information relating to the issuance and continuance of such order or the modification or termination thereof Or to the time fixed in such notice. [FN27]

FN27. Id. s 105(a)(1), 30 U.S.C. s 815(a)(1) (1970) (emphasis supplied).

If this were the sole statutory directive concerning administrative review of orders and notices, we would be inclined simply on the basis of the plain language of this section to accept petitioner's contention that the only permissible challenge to a notice was one calling into question the reasonableness of the time for abatement. Section 105(a)(1) clearly differentiated withdrawal orders and violation notices: one affected by an order in any way could seek "review of the order," [FN28] while one aggrieved by a violation notice could apply for review only "if he

believe(d) that the period of time fixed in the notice for abatement of the violation (was) unreasonable." [FN29] And while in the case of an order \*892 \*\*114 a litigant could "present information relating to the issuance and continuance of such order or the modification or termination thereof," [FN30] in the instance of a notice his offering was limited "to the time fixed in such notice." [FN31]

FN28. Id.

FN29. Id.

FN30. Id.

FN31. Id.

[2] Section 105, however, continued in subsection (b) in a somewhat ambiguous fashion:

Upon receiving the report of . . . investigation, the Secretary shall make findings of fact, and he shall issue a written decision, incorporating therein an order vacating, affirming, modifying, or terminating the order, or the modification or termination of such order, or the notice, complained of and incorporate his findings therein.[FN32]

FN32. Id. s 105(b), 30 U.S.C. s 815(b) (1970).

That, considered alone, was susceptible to a reading empowering the Secretary to "terminat(e)" a "notice," an event which could logically occur only if the notice were reviewed on the merits. Statutory provisions are to be construed, however, not in isolation but together with other related provisions.[FN33] So treated, Section 105(b) could much more readily be interpreted as authorizing only such relief from orders and notices as was consistent with the highly specific directions in Section 105(a)(1) as to the issues respectively raisable upon challenges to the one or the other.

FN33. See Philbrook v. Glodgett, 421 U.S. 707, 713, 95 S.Ct. 1893, 1898, 44 L.Ed.2d 525, 532-533 (1975), citing United States v. Heirs of Boisdore, 49 U.S. (8 How.) 113, 122, 12 L.Ed. 1009, 1013 (1849); Kokoszka v. Belford, 417 U.S. 642, 650, 94 S.Ct.

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2431, 2436, 41 L.Ed.2d 374, 381 (1974), cit-  
ing *Brown v. Duchesne*, 60 U.S. (19 How.)  
183, 194, 15 L.Ed. 595, 599 (1857).

#### IV

Since perhaps we cannot with complete safety rest the statutory limits of administrative review upon the statutory text alone, we turn to the legislative history for guidance to the congressional intent.[FN34] and find that the history is fortunately unambiguous. The precursor of the 1969 statute, the Federal Coal Mine Safety Act of 1952,[FN35] while providing for administrative and judicial review of withdrawal orders, furnished no vehicle whatsoever for review of violation notices.[FN36] Similarly, in the legislative process leading to the 1969 Act, neither the bill initially passed by the House [FN37] nor that first approved by the Senate authorized review of notices of violation.[FN38] When, however, those bills which in other respects differed left the hands of conferees on behalf of the two chambers, the text of the review provisions of Section 105 emerged.[FN39] And the Conference Report delineates the scope of jurisdiction afforded by the 1969 review mechanism: it "provide(d) in Section 105(a) for review Solely of the reasonableness of the time fixed in (the) notice." [FN40] The legislative history thus evidences plainly enough a congressional purpose to open up to review only a single narrow question regarding violation notices.

FN34. See, E. g., *First Nat'l Bank v. Walker Bank & Trust Co.*, 385 U.S. 252, 261, 87 S.Ct. 492, 497, 17 L.Ed.2d 343, 349 (1966); *United Shoe Workers v. Bedell*, 165 U.S.App.D.C. 113, 118, 506 F.2d 174, 179 (1974); *Portland Cement Ass'n v. Ruckelshaus*, 158 U.S.App.D.C. 308, 316, 486 F.2d 375, 383, Cert. denied, 417 U.S. 921, 94 S.Ct. 2628, 41 L.Ed.2d 226 (1973); *National Petroleum Refiners Ass'n v. FTC*, 157 U.S.App.D.C. 83, 100, 482 F.2d 672, 689, Cert. denied, 415 U.S. 951, 94 S.Ct. 1475, 39 L.Ed.2d 567 (1973).

FN35. Act of July 16, 1952, ch. 877, 66 Stat. 692.

FN36. Id., 66 Stat. 699-702.

FN37. S. 2917, reprinted in Senate Comm.

on Labor and Public Welfare, 94th Cong., 1st Sess., Legislative History of the Federal Coal Mine and Safety Act of 1969, at 1402-1438 (Comm. Print 1975) (hereinafter cited as "Legislative History").

FN38. S. 2917, Legislative History 782-912.

FN39. S. 2917, Legislative History 1445-1506.

FN40. H.R.Rep. No. 91-761, 90th Cong., 2d Sess. 69 (1969); U.S.Code Cong. & Admin.News 1969, p. 2503, Legislative History 1513 (statement of House managers) (emphasis supplied).

If any further indicium of that intent were necessary, it would be found in the \*893 \*\*115 section-by-section analysis of the Conference bill, which Senator Williams one of the sponsors of the Senate bill and a Conference Committee manager introduced into the Congressional Record during the post-conference Senate debates. Addressing Section 105, the analysis states:

Subsections (a), (b), and (c) establish a procedure for reviewing administratively withdrawal orders issued by an inspector, modifications or terminations of such orders by an inspector, and The reasonableness of the time limits in notices. . . . [FN41]

FN41. Legislative History 1603 (emphasis supplied).

This passage not only confirms our understanding of the Conference Report's use of the word "solely," [FN42] but like its progenitors it makes no reference to the possibility that a notice could be vacated or otherwise terminated on the merits.

FN42. See text Supra at note 40.

[3] Against this array of historical data, the Secretary can point merely to an administrative interpretation by the Board of Mine Operations Appeals to the effect that the notice-review provisions authorize some measure of consideration of violation notices on the merits. Several years ago, in *Freeman Coal Mining Corporation*,[FN43] the Board, without any

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discernible analysis of the problem, said:

FN43. Supra note 21.

We accept, at least for purposes of the issues presently before us, the proposition that any time for abatement is an unreasonable time if no violation exists.[FN44]

FN44. Freeman Coal Mining Corp., supra note 21, 1 I.B.M.A. at 27. That proposition was accepted “for purposes of the issues presently before” the Board. Id. The Board reasoned only that “the Act itself nowhere expressly precludes review of the fact of violation,” Id. at 28, yet the proper question is not how much jurisdiction was precluded but how much was conferred.

While the Secretary correctly notes that courts normally accord great weight to administrative construction of the statute administered,[FN45] such interpretations forfeit their entitlement to deference when they plainly conflict “with other indicia of the proper interpretation of” the statute. [FN46] As we have seen, the words of Section 105(a),[FN47] viewed in the strong light of the straightforward legislative history,[FN48] argue irresistibly the other way.

FN45. See, E. g., Griggs v. Duke Power Co., 401 U.S. 424, 433-434, 91 S.Ct. 849, 854-855, 28 L.Ed.2d 158, 165 (1971); United States v. City of Chicago, 400 U.S. 8, 10, 91 S.Ct. 18, 20, 27 L.Ed.2d 9, 12-13 (1970); Udall v. Tallman, 380 U.S. 1, 4, 85 S.Ct. 792, 795, 13 L.Ed.2d 616, 619 (1965).

FN46. General Elec. Co. v. Gilbert, 429 U.S. 125, 143, 97 S.Ct. 401, 411-412, 50 L.Ed.2d 343, 358 (1976); accord, Laborers' Local 1057 v. NLRB, 186 U.S.App.D.C. 13, 22, 567 F.2d 1006, 1015 (1977) (“(w)hile we respect an administrative agency's interpretation of a statute that it is entrusted with enforcing, in the end the paramount deference must be extended to Congress itself”) (footnote omitted).

FN47. See text at notes 25-27 Supra.

FN48. See text at notes 34-42 Supra.

[4] Moreover, were we to read the review provisions as the Secretary urges, we would effectively obliterate the distinction which Section 105(a)(1) plainly made between administrative review of withdrawal orders and of violation notices.[FN49] It would have made no sense at all for Congress to have separately and differently articulated the scope of review of orders and notices if they were to be precisely the same. Particularly against the backdrop of the legislative history, we cannot assume that Congress intended its distinction to have no meaning.[FN50]

FN49. See text at notes 27-31 Supra.

FN50. See American Horse Protection Ass'n v. Department of Interior, 179 U.S.App.D.C. 246, 253, 551 F.2d 432, 440 (1977).

The Secretary also contends that the Supreme Court in National Independent Coal Operators Ass'n v. Kleppe, supra note 1, ruled that an operator could obtain administrative review on the merits of a violation notice. All the Supreme Court said was that “(u)nder s 105, 30 U.S.C. 815, an operator may apply to the Secretary for review of the factual basis of any order or notice issued under s 104, or for review of the amount of time allowed for abatement of violations.” 423 U.S. at 391, 96 S.Ct. at 811, 46 L.Ed.2d at 584. The Court in that case was not specifically considering the breadth of review allowed. We are unwilling to assume that this casual description was intended as a definitive interpretation of the scope of permissible review.

The Secretary also points to two decisions, Lucas v. Morton, 358 F.Supp. 900 (W.D.Pa.1973) (3-judge court), and Lucas Coal Co. v. Interior Bd. of Mine Operation Appeals, 522 F.2d 581 (3d Cir. 1975), and argues that they conflict with the conclusion we reach. To the extent that those courts differ in their interpretation of the review provisions, we must respectfully disagree. See also Kanawha Coal Co. v. Andrus, 553 F.2d

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361, 363 (4th Cir. 1977) (noting, without criticism, "the position of the Secretary that" administrative review extends to "whether a violation existed . . . and whether the time for abatement fixed by that notice was reasonable").

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To be sure, the interpretation we ascribe to Section 105(a) could have worked some hardship on a mine operator who received a notice of violation but believed that he was in full conformity with the Act. He then would have been compelled either to abate the condition or to await transformation of the notice to a withdrawal order by a failure to abate, at which point he would have finally been entitled to challenge the existence of the violation. [FN51] On the other hand, a contrary construction would simply have transferred the hardship to the miners, and with a much more emphatic impact. Since a withdrawal order automatically removed miners from the area of the alleged health and safety violation, even prolonged review at that time of the order on the merits did not leave them at peril. When, however, only a notice had issued, review of the fact of violation would have subjected the miners to continuing their labors perhaps for a substantial period under conditions which, though not thought to be imminently dangerous, [FN52] were nonetheless believed to be unwholesome and in contravention of the Act's health and safety standards. [FN53]

[FN51]. See Federal Coal Mine Health and Safety Act of 1969, s 105(a), 30 U.S.C. s 815(a) (1970).

[FN52]. See Id. s 104(b), 30 U.S.C. s 814(b) (1970).

[FN53]. See also S.Rep. No. 181, Supra note 3, at 30, (1977) U.S.Code Cong. & Admin.News at p. 3430 ("(t)he Committee believes that rapid abatement of violations is essential for the protection of miners").

In any event, the decision where the hardship should fall was one for Congress to make, [FN54] and, unconstitutionality aside, [FN55] neither we nor the Secretary has the prerogative to alter it. Congress made its choice clear when, in staking out goals for the 1969 Act, it solemnly declared that "(t)he first

priority and concern of all in the coal mining industry must be the health and safety of its most precious resource the miner . . . ." [FN56] That priority was reflected in the Act's review provisions, which did not tolerate either temporary relief from notices of violation [FN57] or, as we now hold, review on the merits of the violation charged while miners continued to work in the affected area. Only when the miners had been removed, or after the violation had been abated and civil-penalty proceedings instituted, did the operator become entitled to challenge the existence of conditions allegedly trespassing upon the Act. That, we think, was Congress' decree, and we must respect it.

[FN54]. See, E. g., Barnes v. Costle, 183 U.S.App.D.C. 90, 101 n. 81, 561 F.2d 983, 994 n. 81 (1977).

[FN55]. Because no issue has been raised concerning the constitutionality of the statutory scheme, we do not pass on it here. But see Lucas v. Morton, supra note 50.

[FN56]. Federal Coal Mine Health and Safety Act of 1969, s 1, 30 U.S.C. s 801(a) (1970). See also UMW v. Kleppe, supra note 1, 174 U.S.App.D.C. at 330-331, 532 F.2d at 1405-1406.

[FN57]. See note 26 Supra and accompanying text.

The order of the Board of Mine Operations Appeals is reversed and the case is remanded [FN58] for further proceedings consistent with this opinion.

[FN58]. As we noted earlier, note 3 Supra, the Board of Mine Operations Appeals no longer exists and the Secretary of the Interior no longer is responsible for administrative review in this field, but pursuant to the new law we retained the Secretary as respondent. Although we are thus technically remanding to the Secretary, under the 1977 Act further proceedings to comply with this opinion will automatically take place before the Federal Mine Safety and Health Review Commission. See Federal Mine Safety and Health Amendments Act of 1977, Pub.L. No. 95-164, tit. III, s 301(c)(3), 91 Stat.

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1318.

Reversed and remanded.

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Federal Mine Safety and Health Review Commission (F.M.S.H.R.C.)

**\*\*1 SECRETARY OF LABOR, MINE SAFETY AND HEALTH ADMINISTRATION (MSHA)**

**v.**

**MATHIES COAL COMPANY**

Docket No. PENN 82-3-R

Docket No. PENN 82-15

January 6, 1984

**\*1 DECISION**

This consolidated proceeding arises under the Federal Mine Safety and Health Act of 1977, 30 U.S.C. § 801 et seq. (1976 & Supp. V 1981), and presents the question of whether a violation of 30 C.F.R. § 75.1403 was "significant and substantial" within the meaning of Cement Division, National Gypsum Company., 3 FMSHRC 822 (April 1981). The Commission's administrative law judge concluded that Mathies Coal Company ("Mathies") violated the standard, that the violation was significant and substantial, and assessed a penalty. 4 FMSHRC 1111 (June 1982) (ALJ). We granted Mathies' petition for discretionary review, which challenges only the judge's significant and substantial findings. For the reasons that follow, we affirm.

On September 22, 1981, during a spot inspection of Mathies' underground coal mine, an inspector of the Department of Labor's Mine Safety and Health Administration ("MSHA") issued a citation to Mathies under section 104(a) of the Mine Act, 30 U.S.C. § 814(a) (Supp. V 1981). The citation alleged a violation of 30 C.F.R. § 75.1403, [FN1] and stated:

**\*2** One of the four sanding devices provided for the No. 4 self-propelled personnel carrier (mantrip) was inoperative which was going to transfer personnel from Gamble No. 1 to 4 face 24 Butt Parallel Section. The sander was empty due to a valve that was stuck open. Foreman in charge Ron Pietroboni. Notice to provide safeguard 1JWC 12-01-72. [FN2]

The citation also alleged that the violation was significant and substantial. The inspector issued the citation at the start of the day shift, immediately following the mantrip operator's regular check of the mantrip. The inspector terminated the citation five minutes later after Mathies adjusted the valve and refilled the defective sander with sand. Thereafter, Mathies filed with this independent Commission a notice of contest of the citation. The contest proceeding subsequently was consolidated with the Secretary of Labor's proposal for a civil penalty.

The mantrip was used by Mathies to transport its production crews of 8-10 miners to and from working areas in the mine. The mantrip traveled along the haulage track from an area near the mine portal called the "bottom" to the working sections, at the beginning of each of three shifts and back again at the conclusion of the shifts. In addition to primary and secondary braking systems, the mantrip was equipped with a sander above each of its four wheels. Each sander contained a half-gallon of sand. The sanders supplemented the mantrip's brakes by dispensing sand in order to increase the friction between the haulage track and the wheels. The mantrip used only the two sanders at the front end, as determined by the direction of travel. One hand lever activated the two sanders at the front end of the mantrip, so that one inoperable sander would reduce sanding capacity by one-half.

**\*\*2** The record evidence indicates that sanders were most likely to be needed to supplement a mantrip's brakes in wet conditions, on curves, or on grades. The Mathies mine was considered to be a "wet" mine. Some areas along the haulage track were always damp or wet. In a few locations, Mathies used sump pumps to reduce excess moisture. On September 22, 1981, the haulage track was wet at least in part because it was a high humidity time of year. The mantrip's route to the working section on the September 22d day shift passed curves, including blind curves and an S-curve, and hills, the steepest having a 3.4% grade.

At the time the inspector issued the citation, the mantrip was fully loaded and ready to go. The inoperable sander was on the rear end of the mantrip. Because the mantrip changed directions five minutes into the 20-minute trip, however, what was the rear end of the mantrip at the start of the trip would become the front end. Thus, the majority of the mantrip's 6,500-foot trip into the mine and a portion of the return trip could have required the use of the inoperable sander to supplement the brakes.

**\*3** The Commission's administrative law judge concluded that the defective sander constituted a violation of the cited standard, and that the violation was significant and substantial. He assessed a \$130 penalty. Applying the National Gypsum test for determining when a violation is significant and substantial, the judge concluded that the hazard associated with the violation was a sliding derailment or collision with an object on the tracks, and that the hazard was reasonably likely to result in an injury of a reasonably serious nature. 4 FMSHRC at 1115, 1117-19. He attributed the likelihood of such injury to such factors as the "wetness, albeit occasional, of the haulageway, the curves, and downgrades in the mine and the intrinsic danger of haulage travel itself." 4 FMSHRC at 1118.

The issue on review is whether substantial evidence supports the judge's conclusion that the violation was "of such a nature as could significantly and substantially contribute to the cause and effect of a coal or other mine safety or health hazard." 30 U.S.C. § 814(d)(1) (Supp. V 1981). [FN3] We have previously interpreted this statutory language as follows:

[A] violation is of such a nature as could significantly and substantially contribute to the cause and effect of a mine safety or health hazard if, based upon the particular facts surrounding that violation, there exists a reasonable likelihood that the hazard contributed to will result in an injury or illness of a reasonably serious nature.

National Gypsum, 3 FMSHRC at 825. Noting that the Mine Act does not define "hazard," we construed the term to "denote a measure of danger to safety or health." 3 FMSHRC at 827. We stated further that a violation " 'significantly and substantially' contributes to the cause and effect of a hazard if the violation could be a major cause of a danger to safety or health. In other words, the contribution to cause and effect must be significant and substantial." Id. (footnote omitted).

**\*\*3** In order to establish that a violation of a mandatory safety standard is significant and substantial under National Gypsum, the Secretary of Labor must prove: (1) the underlying violation of a mandatory safety standard; [FN4] (2) a discrete safety hazard—that is, a measure of danger to safety—contributed to by the violation; (3) a reasonable likelihood that the hazard contributed to will \*4 result in an injury; and (4) a reasonable likelihood that the injury in question will be of a reasonably serious nature. As a practical matter, the last two elements will often be combined in a single showing.

Here, only two of the four elements necessary to establish a significant and substantial violation are at issue. Mathies does not contest the judge's finding of a violation or, assuming the existence of a hazard posing a reasonable likelihood of injury, that the injury would be reasonably serious. Mathies argues only that the evidence does not support a finding either that one defective sander could contribute to a hazard or that any such hazard would involve a reasonable likelihood of injury.

The judge found that the violative condition, the defective sander, contributed to a hazard of a sliding derailment or collision with some object on the tracks. 4 FMSHRC at 1115. The record amply supports this finding. Section

75.1403-6(b)(3) (n. 1 supra), which requires sanders on mantrips, reflects a broad determination by the Secretary of Labor that a mantrip's brakes by themselves do not always provide sufficient traction to prevent derailment or collision and that sanders are necessary to provide added stopping power. MSHA's modification of the 1972 notice of safeguard to Mathies (n. 2 supra) reflects a specific determination that conditions at the Mathies mine required that mantrips be equipped with properly maintained sanding devices "sufficient to sand all wheels in both directions of travel."<sup>4</sup> FMSHRC at 1112. These determinations support the conclusion that because brakes alone may not suffice to stop the mantrip at Mathies' mine, sanders are necessary to supplement the brakes and that a defective sander can contribute to a derailment or collision hazard.

Moreover, the record also establishes the existence of a hazard on the day of the citation. The damp conditions in the mine, the wet track, and the fact that the mantrip's route traversed curves and grades, created travel risks on September 22, 1981, that could have required the extra traction that sanders are intended to provide. The foregoing considerations establish the existence of a hazard. We need not pass on the validity of the additional consideration, relied on by the judge, of the "intrinsic danger" of haulage travel.

The remaining issue is whether the judge properly concluded that there was a reasonable likelihood that the hazard contributed to could result in injury. As we have noted in our discussion of the hazard, the mantrip's route encompassed curves and grades. In addition to the chronically wet conditions at the mine, conditions were exceptionally wet on the day the citation was issued. If the dampness, curves, or grades had necessitated use of the defective sander, the absence of sanding capacity could have been a major cause of a derailment or a collision. We must be mindful of the fact that the mantrip carried miners, and we agree with the judge that it is reasonably likely that such a loss of control would have exposed the 8-10 miners riding in the mantrip to the reasonably serious injury that any derailment or collision could entail. Thus, we concur with the judge that the hazard contributed to by the violation created a reasonable likelihood of injury, and that the violation was therefore a major cause of a danger to safety.

**\*\*4 \*5** In reaching this conclusion, we note that the judge's decision was based in large part on his credibility findings and his resolution of disputed testimony in the Secretary's favor. Such determinations by a judge should not be overturned lightly, and in any event, we need not take that exceptional step here. Secretary on behalf of Robinette v. United Castle Coal Co., 3 FMSHRC 803, 813 (April 1981). First, in light of our admonition that an inspector's judgment is an important element in making significant and substantial findings, (National Gypsum, 3 FMSHRC at 825-26), the judge gave appropriate weight to the inspector's judgment. Second, as the judge concluded, the inspector's testimony was "reasonable, logical and credible."<sup>4</sup> FMSHRC at 1115. The inspector observed conditions firsthand, in contrast to Mathies' sole witness, its foreman, who conceded he was present only part of the time. Moreover, the inspector's testimony was more specific than that of the foreman who could not remember the exact conditions that day. Thus, we conclude that the judge did not err in crediting the inspector's testimony as to the wet rail, the hazards created by the loss of sanding capacity, and the likelihood of injury.

For the foregoing reasons, we affirm the judge's holding that the violation was significant and substantial.

Rosemary M. Collyer  
Chairman

Richard V. Backley  
Commissioner

Frank F. Jestrab  
Commissioner

L. Clair Nelson  
Commissioner

6 FMSHRC 1, 1983-1984 O.S.H.D. (CCH) P 26756, 1984 WL 184713  
(F.M.S.H.R.C.)

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FN1 The portions of the standard involved in this citation are:

Section 75.1403, a statutory provision, which requires that

[o]ther safeguards adequate, in the judgment of an authorized representative of the Secretary, to minimize hazards with respect to transportation of men and materials shall be provided;

Section 75.1403-1, which permits the Secretary's authorized representative to require on a mine-by-mine basis, safeguards in addition to those required in §§ 75.1403-2 through 75.1403-11; and

Section 75.1403-6(b)(3), which requires in part that each track-mounted, self-propelled personnel carrier be equipped with "properly installed and well-maintained sanding devices...."

FN2 A general notice of safeguard, issued December 1, 1972, requiring sanding devices on all self-propelled mantrips, was modified on August 12, 1980. The modification required that "all mantrips at this mine will be provided with properly maintained sanding devices sufficient to sand all wheels in both directions of travel."4 FMSHRC at 1112.

FN3 The Mine Act's references to significant and substantial violations are contained in sections 104(d) and (e), 30 U.S.C. §§ 814(d) & (e). The MSHA inspector's significant and substantial findings in this case were made in connection with a citation issued under section 104(a) of the Mine Act, 30 U.S.C. § 814(a), which does not expressly refer to this statutory phrase. Mathies has not challenged the propriety of including such findings in a section 104(a) citation, and we accordingly express no view on the issue in this decision. We note, however, that the question is pending before us in Consolidation Coal Co., FMSHRC Docket No. PENN 82-203-R, etc.

FN4 We emphasize that this case involves the violation of a mandatory safety standard. We have pending before us a case raising a challenge to the application of National Gypsum to a violation of a mandatory health standard. Consolidation Coal Co., FMSHRC Docket No. WEVA 82-209-R, etc. We intimate no views at this time as to the merits of that question.

**\*\*5 \*6** Commissioner Lawson concurring:

I agree with the majority as to the result reached and in their affirmance of the decision of the judge below. However, for the reasons expressed in my dissent in National Gypsum, supra, I disagree with their analytical approach as set forth here and in that decision.

A.E. Lawson  
Commissioner

6 FMSHRC 1, 1983-1984 O.S.H.D. (CCH) P 26756, 1984 WL 184713 (F.M.S.H.R.C.)

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C

United States Court of Appeals,  
Eleventh Circuit.  
NATIONAL MINING ASSOCIATION, Alabama  
Coal Association, Petitioners,  
v.  
SECRETARY OF LABOR, Mine Safety and Health  
Administration, Respondents.

No. 08-14309.  
Dec. 15, 2009.

**Background:** Mining associations brought proceeding challenging decision of Mine Safety and Health Administration (MSHA), Agency No. 108-V-03, concerning Procedure Instruction Letter (PIL) Safety and Health Administration, providing direction to MSHA enforcement officials for evaluating and approving extended cut plans in coal mines.

**Holding:** The Court of Appeals, Birch, Circuit Judge, held that PIL was general statement of policy, not mandatory standard subject to notice and comment requirements.

Dismissed.

West Headnotes

## Labor and Employment 231H 2636

231H Labor and Employment

231HXV Mines

231HXV(A) In General

231Hk2635 Regulations in General

231Hk2636 k. In general. Most Cited

Cases

Procedure Instruction Letter (PIL) promulgated by Mine Safety and Health Administration, providing direction to MSHA enforcement officials for evaluating and approving extended cut plans in coal mines, was general statement of policy, not mandatory standard subject to notice and comment requirements; PIL related only to extended cut plans, which were by their nature exception to general federal regulations in place, PIL included language of advisory and

permissive nature, and whole context of PIL was in subject area controlled by individual case-by-case discretion. Federal Mine Safety and Health Act of 1977, § 101(a)(2, 3), 30 U.S.C.A. § 811(a)(2, 3); 30 C.F.R. § 75.330(b)(2).

\*1369 Thomas C. Means, Daniel W. Wolff, Edward M. Green, Crowell & Moring, LLP, Washington, DC, for Petitioners.

Jerald S. Feingold, W. Christian Schumann, U.S. Dept. of Labor, Office of Sol., Arlington, VA, for Respondents.

Petition for Review of a Decision of the Federal Mine Safety & Health Administration.

Before DUBINA, Chief Judge, and BIRCH and SILER,<sup>FN\*</sup> Circuit Judges.

FN\* Honorable Eugene E. Siler, Jr., United States Circuit Judge for the Sixth Circuit, sitting by designation.

BIRCH, Circuit Judge:

The National Mining Association and Alabama Coal Association (together “NMA”) dispute Procedure Instruction Letter I08-V-03 (“PIL”) promulgated by the Secretary of Labor’s Mine Safety and Health Administration (“MSHA”). NMA challenges the PIL on substantive and procedural grounds. After careful review, we find the PIL to be a general statement of policy and DISMISS for lack of subject-matter jurisdiction.

### I. BACKGROUND

The Federal Coal Mine Health and Safety Act of 1969, redesignated the Federal Mine Safety and Health Act of 1977 (“Mine Act”), governs and regulates coal mines throughout the United States. *See* 30 U.S.C. § 801(g). The Mine Act itself established certain “interim” mandatory health and safety standards, but also authorized MSHA, originally through its predecessor, the Bureau of Mines, to promulgate new or revised standards. *See id.* §§ 801(g)(1), 811(a), 841(a); *Nat’l Mining Ass’n v. Sec’y of Labor*, 153 F.3d 1264, 1266 (11th Cir.1998).

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Since the Mine Act, MSHA has promulgated mandatory health standards governing the exposure of coal miners to respirable dust in underground coal mines as part of its mandatory health standards for underground mines. *See* 30 C.F.R. 70.100. MSHA regulations require mine operators to conform operations to certain standards, such as “maintain[ing] the average concentration of respirable dust in the mine atmosphere ... at or below 2.0 milligrams of respirable dust per cubic meter of air” and “maintain[ing] the average concentration of respirable dust within 200 feet outby the working faces of each section in the intake airways at or below 1.0 milligrams of respirable dust.” *Id.* at § 70.100(a), (b). The regulations further require mine operators to take respirable dust samples and to develop and follow a ventilation plan approved by the district manager. *Id.* at §§ 70.207(a), 75.370; *see also* \*1370 *United Mine Workers of Am., Int’l Union v. Dole*, 870 F.2d 662, 667-68 (D.C.Cir.1989) (describing how federal regulations require mine operators to develop plans to address specific safety issues like roof control and ventilation and explaining that the specific content of any individual mine plan is determined through consultation between the mine operator and district manager and may incorporate requirements to supplement or supplant standards set out in the enumerated criteria so long as these alternative requirements protect miners at least as much as the enumerated criteria).

During the course of coal mining, mine operators penetrate (dig) into the earth, support the underground shafts (penetrated holes) through permanent roof supports, and extract coal from the point of deepest penetration known as the “working face” of the mine. When the working face extends beyond the last row of permanent roof supports by more than twenty feet, the operator is said to be making an “extended cut.” PIL No. 108-V-03 at 1 (“An extended cut (deep cut) is defined as any cut in which the on-board manual controls of the continuous mining machine are advanced in by the last row of permanent roof supports ... more than 20 feet ...”). Although not specifically addressed by codified regulations, the extended cut practice does relate to two highly regulated areas of coal mining: ventilation and roof control.

Current regulations require ventilation control devices be installed at a distance no more than ten

feet from the working face unless MSHA (through a district manager) approves a greater distance in the ventilation plan. *See* 30 C.F.R. §§ 75.330(b)(2). Regulations also require roof supports within so many feet of the working face unless district managers approve greater distances in roof control plans. *See id.* §§ 75.202-75.220 (prescribing distance requirements for temporary and permanent roof supports and procedures for roof control plan submission and approval). In practice, after evaluating a particular mine, district managers regularly approve working face distances that exceed those specified in the regulations to accommodate the needs of mine operators.

To help MSHA enforcement personnel, like district managers, with uniform regulation practices, the Administrator for Coal Mine Safety and Health periodically issues Procedure Instruction and Program Policy Letters. *See United States Department of Labor Mine Safety & Health Administration, Frequently Asked Questions: What is a PIL?* (Nov. 30 2009), available at <http://www.msha.gov/faq/faqhome.htm>. These letters “state agency policy, meaning an interpretation or clarification of a regulation ... [and] are intended for the mining community as well as MSHA enforcement personnel.” *Id.* The PIL at issue in this case states that its purpose is to give “direction” to MSHA enforcement officials (district managers) for evaluating and approving extended cut plans. PIL No. 108-V-03 at 1. It states further:

“These procedures provide a systematic approach for evaluating new extended-cut approval requests. An on-site evaluation will be made to assess the adequacy of a proposed plan to determine if extended cuts can be made without adversely affecting the health and safety of miners ... District managers are strongly encouraged to consider whether approval of an extended cut plan is appropriate if MSHA collected respirable dust samples indicate a dust concentration of greater than the applicable standard or quartz concentration that exceeds 100 ug/m3.”

*Id.* at 2, 6. In short, the PIL describes a standard policy procedure, and standard factors-with objective measurement \*1371 ranges-for district managers to consider when they evaluate a mine operator's extended cut plan. NMA argues that the new standards described in the PIL function as a *de facto* mandatory standard promulgated without adherence to the pro-

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cedural notice and comment requirements of the Mine Act and the Administrative Procedures Act ("APA"), 5 U.S.C. § 551 *et seq.*

## II. DISCUSSION

The Mine Act authorizes MSHA to promulgate new or revised "improved" standards, as appropriate, in accordance with the rulemaking procedures of the APA as well as the specific rulemaking procedures of the Mine Act itself. *See* 30 U.S.C. §§ 811(a), 841(a). When MSHA promulgates a new or revised *mandatory* standard, it is obligated to publish the proposed rule in its entirety in the Federal Register, give the public and the regulated community an opportunity to comment and raise objections, and hold a public hearing on any objections to the standard if one is requested. *See id.* at § 811(a)(2), (3). The courts of appeals have exclusive jurisdiction over challenges to the validity of a *mandatory* standard. *See id.* at § 811(d).

The PIL in question here was issued directly as a letter from the Administrator for Coal Mine Safety and Health. MSHA admits that the letter did not go through formal notice and comment procedures. Therefore, if the PIL is found to be a mandatory standard, MSHA would have violated the APA and Mine Act by not following the prescribed notice and comment requirements. Conversely, if the PIL is not a mandatory standard, but instead a general statement of policy, we would lack subject-matter jurisdiction to hear any challenge.

We have previously delineated the difference between a legislative rule, to which notice and comment requirements apply, and a general statement of policy, to which they do not:

Generally, whether a particular agency proceeding announces a rule or a general policy statement depends upon whether the agency action establishes a binding norm. The key inquiry, therefore, is the extent to which the challenged policy leaves the agency free to exercise its discretion to follow or not to follow that general policy in an individual case, or on the other hand, whether the policy so fills out the statutory scheme that upon application one need only determine whether a given case is within the rule's criterion. As long as the agency remains free to consider the individual facts in the various cases that arise, then the agency in question

has not established a binding norm.

*Ryder Truck Lines, Inc. v. United States*, 716 F.2d 1369, 1377 (11th Cir.1983) (quotation marks and internal citations omitted). Additionally, in determining whether an agency has issued a binding norm or a policy statement, courts have looked at: (1) the agency's expressed intentions as reflected by its characterization of the statement, (2) whether the statement was published in the Federal Register or the Code of Federal Regulations, and (3) whether the action has binding effects on private parties. *Center for Auto Safety v. Nat'l Highway Traffic Safety Admin.*, 452 F.3d 798, 806 (D.C.Cir.2006).

NMA cites *Nat'l Mining Ass'n*, 153 F.3d at 1266 for the conclusion "that if MSHA intends to change the existing mandatory respirable dust program, it must do so by ... notice and comment rule making." Petr.'s Resp. to Juris. Ques. 14. In that case, however, there was no dispute that MSHA had already engaged in rulemaking *per se*. Rather, the central question was whether that rulemaking was procedurally **\*1372** sound. *Nat'l Mining Ass'n*, 153 F.3d at 1267-69. While the court did speak to procedures changing dust sampling measurements as requiring notice and comment rulemaking, the court's language was in the context of new formal procedures published in Federal Register notices controlling every coal mine air sampling procedure. *Id.* at 1266-68. The novel concern in the procedures described in that case were more technologically advanced and accurate air sampling equipment necessitating fewer air samples be taken for every air sampling procedure involved in coal mines. *Id.* In contrast, the PIL procedures at issue in this case only speak to air sampling in the context of extended cut plans—a territory far narrower than a broad published rule regarding every coal mine air sample taken. *See* PIL No. I08-V-03 at 1.

The distinguishing issue in this case is that the PIL relates only to extended cut plans, which are by their very nature an exception to the general federal regulations in place. Current regulations require mine operators to take mine shaft infrastructure measures within a few feet of the working face. *See, e.g.,* 30 C.F.R. § 75.330(b)(2) (requiring ventilation devices within ten feet of the working face). The exception to this rule is that district managers may, on a case-by-case basis, approve ventilation plans that exempt mine operators from the normally-required infrastruc-

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ture measures. *Id.* Accordingly, the PIL adjustments to the case-by-case extended cut regulation exceptions are by their very nature contingent on the “individual facts in the various cases that arise” and thus not “a binding norm.” Ryder Truck Lines, Inc., 716 F.2d at 1377.

Moreover, supporting the conclusion that the PIL is merely a general statement of policy one need only look at the advisory and permissive language of the PIL itself. When MSHA speaks in rule-making form, it speaks directly. *See, e.g.*, 30 C.F.R. 70.100(b) (“Each operator *shall* continuously maintain ... respirable dust within 200 feet outby the working faces ... at or below 1.0 milligrams of respirable dust per cubic meter of air ...”) (emphasis added). The PIL, on the other hand, states general considerations, such as, “[d]istrict managers are *strongly encouraged* to consider whether approval of an extended cut plan is appropriate.” PIL No. I08-V-03 at 6 (emphasis added). The PIL also states that certain information, like mine history, cut sequence limitations, and what is included in a ventilation plan, “should” be considered. *Id.* at 1-7. By its terms, the PIL thus addresses the general procedures district managers are to consider when evaluating a discretionary extended cut plan. The agency, through district managers, is therefore “free to consider the individual facts” when evaluating each specific mine. Ryder Truck Lines, Inc., 716 F.2d at 1377.

In summary, mine operators are required to follow certain operating procedures. Within practice, however, district managers can and regularly do grant exceptions so that operators can make extended cuts. To create more uniformity during the course of granting these exceptions, MSHA-through the PIL-issued a general policy procedure for district managers to follow. NMA challenged this procedure arguing that it creates new across-the-board rules for mine operators to follow. This is not the case. Operators have been given a proverbial “inch” with discretionary grants by district managers. Now that MSHA has attempted to create a more uniform policy with the exceptions to the rules, mine operators, through NMA, attempt to take a proverbial “mile” by limiting the discretion of district managers. Given that the whole context of the PIL is in a subject area controlled by \*1373 individual case-by-case discretion, the PIL is by its very nature not a binding rule.

### III. CONCLUSION

NMA challenges PIL I08-V-03 as being a *de facto* mandatory standard promulgated without the procedural notice and comment requirements of the Mine Act and APA. As we have explained, we find the PIL to be a general statement of policy. Accordingly, we DISMISS for lack of subject-matter jurisdiction.

DISMISSED.

C.A.11,2009.

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## **Safe Performance Index**

Founded on recent research (Harisha Kinilakodi thesis), the procedure for calculating a Safe Performance Index (SPI) for a mine is presented. First a Performance Index (PI) is calculated using seven normalized measures, as follows:

- No Days-Lost Incidence Rate (NDL IR)
- Non Fatal Days-Lost Incidence Rate (NFDL IR)
- Severity Measure (SM)
- Fatality Incidence Rate (Fatal IR)
- Citations per 100 inspection hours (C/IH)
- Significant and Substantial (S&S) citations per 100 inspection hours (SS/IH)
- Orders per 100 inspection hours (O/IH)

The PI is formed by summing the normalized measures using weighting factors as pre-multipliers, and then normalizing the formed PI (only) using the sample average PI. The weighting factors used were 0.05, 0.15, 0.30, 0.30, 0.05, 0.15, and 0.30 for NDL IR, NFDL IR, SM, Fatal IR, C/IH, SS/IH, and O/IH, respectively. For the PI, high numbers are poorer performers (higher injury rates and/or higher elevated citation rates).

A mine's SPI is then calculated by dividing its PI value by the highest PI value of the sample mines (this could include all mines in a specific group of mines, e.g., underground coal mines), multiplying the result by 100, and then subtracting that from 100. The score thus formed ranges from zero to one hundred, giving an index of safe performance.

Table 1. MSHA data used for comparative analysis of PI and SPI for 31 mines.

Mine ID	Average Employees	Employee Hours	No. Lost Time Accidents	Days Lost	No. of Citations	No. of S&S	No. of Orders	Inspection Hours
1	15	36,004	0	0	16	3	0	237.5
2	13	8,429	0	0	11	6	0	101.50
3	7	12,285	0	0	11	4	0	307.75
4	20	54,692	3	8	51	15	0	740.50
5	20	38,214	1	354	150	84	0	518.00
6	15	36,060	2	162	65	27	2	435.00
7	14	27,067	0	0	7	1	0	212.25
8	15	14,608	1	120	13	1	0	156.50
9	49	135,414	2	146	512	228	76	2740.50
10	35	79,853	2	51	54	23	1	434.00
11	21	36,708	2	60	46	18	0	301.75
12	25	40,880	2	6	47	20	0	356.75
13	21	38,274	0	0	73	39	1	408.25
14	30	67,958	0	0	55	11	2	1092.80
15	36	69,822	4	326	9	5	0	181.50
16	42	106,095	1	9	48	27	2	445.75
17	22	29,166	0	0	84	32	3	416.00
18	37	93,419	5	384	72	28	0	681.75
19	67	178,226	0	0	107	53	0	825.75
20	72	71,977	2	16	48	9	0	492.00
21	56	122,416	2	229	65	20	0	364.00
22	72	170,692	11	1435	96	41	4	619.75
23	63	152,847	23	1188	141	45	1	1162.30
24	58	169,469	1	62	86	57	10	588.00
25	142	278,557	5	47	133	31	8	1556.50
26	107	257,958	3	165	154	53	2	858.75
27	103	309,759	10	176	167	92	2	845.00
28	231	499,328	4	428	196	69	12	2088.00
29	390	894,791	8	658	370	100	5	2861.50
30	303	655,104	12	392	103	33	1	1706.50
31	383	794,802	16	1541	517	128	5	2969.00

Table 2. Reduced Data Used for Calculation of Performance Index (PI).

Mine ID	Fatal IR	NDL IR	NFDL IR	SM	Citations/100 Hr	S&S/ 100 Hr	Orders/ 100 Hr
1	0	0.00	0.00	0.0	6.74	1.26	0.00
2	0	0.00	0.00	0.0	10.84	5.91	0.00
3	0	0.00	0.00	0.0	3.57	1.30	0.00
4	0	25.60	10.97	29.3	6.89	2.03	0.00
5	0	0.00	5.23	1852.7	28.96	16.22	0.00
6	0	11.09	11.09	898.5	14.94	6.21	0.46
7	0	0.00	0.00	0.0	3.30	0.47	0.00
8	0	0.00	13.69	1642.9	8.31	0.64	0.00
9	0	11.82	2.95	215.6	18.68	8.32	2.77
10	0	5.01	5.01	127.7	12.44	5.30	0.23
11	0	0.00	10.90	326.9	15.24	5.97	0.00
12	0	9.78	9.78	29.4	13.17	5.61	0.00
13	0	0.00	0.00	0.0	17.88	9.55	0.24
14	0	5.89	0.00	0.0	5.03	1.01	0.18
15	0	5.73	11.46	933.8	4.96	2.75	0.00
16	0	0.00	1.89	17.0	10.77	6.06	0.45
17	0	0.00	0.00	0.0	20.19	7.69	0.72
18	0	4.28	10.70	822.1	10.56	4.11	0.00
19	0	1.12	0.00	0.0	12.96	6.42	0.00
20	0	11.11	5.56	44.5	9.76	1.83	0.00
21	0	8.17	3.27	374.1	17.86	5.49	0.00
22	0	17.58	12.89	1681.4	15.49	6.62	0.65
23	0	7.85	30.10	1554.5	12.13	3.87	0.09
24	0	8.26	1.18	73.2	14.63	9.69	1.70
25	0	7.18	3.59	33.7	8.54	1.99	0.51
26	0	10.08	2.33	127.9	17.93	6.17	0.23
27	0	12.27	6.46	113.6	19.76	10.89	0.24
28	0	4.01	1.60	171.4	9.39	3.30	0.57
29	0	6.71	1.79	147.1	12.93	3.49	0.17
30	0	3.97	3.66	119.7	6.04	1.93	0.06
31	0	7.30	4.03	387.8	17.41	4.31	0.17

Table 3. Calculation of PI and SPI.

Mine ID	Weighted PI	Normalized PI	SPI
1	2.55	0.02	99.6
2	4.68	0.04	99.2
3	1.45	0.01	99.7
4	14.42	0.12	97.5
5	569.17	4.75	0.0
6	277.93	2.32	51.1
7	1.22	0.01	99.8
8	497.94	4.16	12.4
9	73.51	0.61	87.1
10	44.47	0.37	92.2
11	105.94	0.88	81.4
12	16.22	0.14	97.1
13	7.69	0.06	98.6
14	2.21	0.02	99.6
15	284.29	2.37	50.0
16	10.05	0.08	98.2
17	8.22	0.07	98.6
18	252.76	2.11	55.6
19	5.55	0.05	99.0
20	18.42	0.15	96.8
21	120.21	1.00	78.9
22	513.64	4.29	9.7
23	476.08	3.98	16.3
24	29.11	0.24	94.9
25	14.31	0.12	97.5
26	46.43	0.39	91.8
27	44.22	0.37	92.2
28	55.65	0.46	90.2
29	49.78	0.42	91.2
30	39.05	0.33	93.1
31	124.04	1.04	78.2

# U.S. Department of Labor

Office of Inspector General—Office of Audit

## MINE SAFETY AND HEALTH ADMINISTRATION



**IN 32 YEARS MSHA HAS NEVER  
SUCCESSFULLY EXERCISED ITS PATTERN  
OF VIOLATIONS AUTHORITY**

Date Issued: September 29, 2010  
Report Number: 05-10-005-06-001

**U.S. DEPARTMENT OF LABOR  
OFFICE OF INSPECTOR GENERAL  
Office of Audit**

## **BRIEFLY...**

Highlights of Report Number 05-10-005-06-001, to the Assistant Secretary of Labor for Mine Safety and Health.

### **WHY READ THE REPORT**

On April 5, 2010, an accident at the Upper Big Branch Mine-South in Montcoal, West Virginia killed 29 miners. Concerns were raised about the mine's safety record and the Mine Safety and Health Administration's (MSHA) process for identifying mines with a pattern of violations (POV). Those concerns increased when MSHA reported that an error in its POV computer application caused this mine to be omitted from a list of mines with potential patterns of violations.

POV authority is an important tool that lets MSHA take enhanced enforcement actions when a mine demonstrates recurring safety violations that could significantly and substantially contribute to the cause and effect of health and safety issues.

### **WHY OIG CONDUCTED THE AUDIT**

The OIG conducted a performance audit to determine:

- How MSHA had developed its POV rules, criteria, and procedures and implemented its POV authority;
- Whether MSHA timely and consistently reviewed and monitored mine operators' POV corrective action plans;
- Whether MSHA's POV computer application contained errors in addition to the one MSHA reported after the Upper Big Branch Mine-South accident;
- Whether MSHA's enforcement data was sufficiently reliable to support accurate POV analysis; and
- The affects on the results of MSHA's POV model from various changes in the criteria.

### **READ THE FULL REPORT**

To view the report, including the scope, methodology, and full agency response, go to:

<http://www.oig.dol.gov/public/reports/oa/2010/05-10-005-06-001.pdf>

**September 2010**

## **IN 32 YEARS MSHA HAS NEVER SUCCESSFULLY EXERCISED ITS PATTERN OF VIOLATIONS AUTHORITY**

### **WHAT OIG FOUND**

MSHA has not successfully exercised its POV authority in 32 years. Administration of this authority has been hampered by a lack of leadership and priority in the Department across various administrations.

MSHA took 13 years to finalize POV regulations. Those regulations created limitations on MSHA's authority that were not present in the enabling legislation and made it difficult for MSHA to place mines on POV status. For the next 17 years, MSHA Districts performed POV analyses based on individual interpretations of requirements, but never put any mine operator on POV status. In 2007, MSHA attempted to implement a standardized method based on quantitative data for identifying potential POV mines. However, (a) the process was unreliable and (b) the criteria were complex and lacked a supportable rationale.

The audit also concluded that:

- MSHA did not monitor the implementation of mine operators' POV corrective action plans;
- Logic errors caused unreliable results from MSHA's POV computer application;
- Tests identified no deficiencies in the reliability of data MSHA used for POV screening; and
- Delays in testing rock dust samples could cause delays in identifying safety hazards.

### **WHAT OIG RECOMMENDED**

We made 10 recommendations to the Assistant Secretary for Mine Safety and Health. In summary, we recommended that MSHA re-evaluate current POV regulations; seek stakeholders input in developing new, transparent POV criteria; use system development life cycle techniques in creating any new POV related computer applications; and re-evaluate the standard for timely completion of laboratory tests.

The Assistant Secretary agreed with our recommendations and committed to developing and implementing corrective actions.

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U. S. Department of Labor – Office of Inspector General

**U.S. Department of Labor**

Office of Inspector General  
Washington, D.C. 20210



September 29, 2010

**Assistant Inspector General's Report**

Joseph A. Main  
Assistant Secretary for  
Mine Safety and Health  
U.S. Department of Labor  
1100 Wilson Boulevard  
Arlington, Virginia 22209

On April 5, 2010, an accident at the Upper Big Branch Mine-South in Montcoal, West Virginia, resulted in the deaths of 29 miners. Concerns were immediately raised about the mine's safety record and the Mine Safety and Health Administration's (MSHA) process for identifying mines having a pattern of violations (POV). Those concerns were heightened when, subsequent to the fatal accident, MSHA determined that a computer error had caused the Upper Big Branch Mine-South to incorrectly be omitted from its most recent list of mines with potential patterns of violations.

As part of our audit oversight responsibility and in response to a request from several Members of Congress, the Office of Inspector General (OIG) audited MSHA's use of its POV authority. This authority is an important tool available to MSHA to take enhanced enforcement actions when a mine operator demonstrates recurring safety violations that could significantly and substantially contribute to the cause and effect of health and safety hazards. See Appendix A for more information.

Specifically, the OIG conducted a performance audit to determine the history of MSHA's administration of its POV authority since its inception in 1977. To this end, we conducted audit work to determine the following:

1. How MSHA had developed its POV rules, criteria, and procedures and implemented its POV authority;
2. Whether MSHA timely and consistently reviewed and monitored mine operators' POV corrective action plans;
3. Whether MSHA's POV computer application contained errors in addition to the one identified and reported by MSHA after the Upper Big Branch Mine-South accident;
4. Whether MSHA's enforcement data was sufficiently reliable to support accurate POV analysis; and
5. The effects on the results of MSHA's POV model from various changes in the criteria.

We conducted this performance audit in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives. Our objectives, scope, methodology, and criteria are detailed in Appendix B.

## **Results in Brief**

Since passage of the Federal Mine Safety and Health Act of 1977 (Mine Act) more than 32 years ago, MSHA has not successfully exercised its POV authority. During that time, MSHA had only once issued a pattern of violations notice to a mine operator. Successful administration of this authority has been hampered by a lack of leadership and priority in the Department across various Administrations, which in turn allowed the rulemaking process to stall and fall victim to the competing interests of the industry, the operators, and the unions representing the miners as to how that authority should be administered.

Indeed, nearly 13 years passed from the enactment of the Mine Act in 1977 until regulations for the administration of the POV authority were finally implemented by the Department in 1990. However, those regulations created limitations on MSHA's authority that were not present in the enabling legislation and which made it difficult for MSHA to place mines on POV status. According to MSHA officials, in the nearly 17 years that followed, MSHA districts, with limited guidance and promotion from the national office, performed POV analyses based on individual interpretations of requirements. In 2007, MSHA attempted for the first time to implement a standard method based on quantitative data for screening and monitoring potential POV mines. However, the criteria lacked a supportable rationale and the process proved to be complex and unreliable.

In responding to our draft report, the Assistant Secretary for Mine Safety and Health agreed that the pattern of violations process was flawed and stated that correcting the problem was a high priority. He agreed with all of our recommendations and specifically stated that MSHA intended to propose new POV regulations to simplify the criteria for placing mines on a POV notice and to make the POV system a more effective tool in identifying problem mines and changing operators' behavior.

He expressed concern with our statement that MSHA was responsible for assuring that mine operators protect workers from mining hazards and our conclusion that MSHA's exclusion of certain mines from POV analysis potentially placed miners at risk (see page 10). Our statement and conclusion are based on the requirements of the Mine Act that describe MSHA's roles and responsibilities in setting safety and health standards, identifying instances of non-compliance (including patterns of violations), and compelling mine operators to take timely corrective actions. These are integral components of the overall system for providing miners with a safe and healthy work

environment. Whenever MSHA does not fulfill these responsibilities, miners may be at increased risk.

The Assistant Secretary's entire response is contained in Appendix L.

We made 10 recommendations to the Assistant Secretary for Mine Safety and Health. In summary, we recommended that MSHA evaluate the appropriateness of revising current POV regulations; seek stakeholder input to POV screening criteria; assure that POV selection criteria are transparent and POV decisions are based solely on safety and health conditions in mines; and ensure that any POV computer applications are developed and maintained using system life cycle techniques.

## RESULTS AND FINDINGS

Specific enforcement authority targeting mine operators with a pattern of significant and substantial (S&S) violations of mandatory safety and health standards was defined in Section 104(e) of the Mine Act. Congress intended this authority as "an effective tool to protect miners when the operator demonstrates his disregard for the health and safety of miners through an established pattern of violations."<sup>1</sup> The Mine Act did not define "pattern of violations," but authorized the Secretary of Labor to make rules to establish criteria for determining when a pattern existed.

To assist MSHA's efforts to improve and make POV authority an effective tool for ensuring safety in the Nation's mines, it is important to understand what has been tried in the past, what obstacles inhibited the usefulness of POV authority, and what concerns must be addressed in a new system. Our audit work covered MSHA's development, implementation, and use of POV authority from its origin in the Mine Act through May 10, 2010. We reviewed MSHA's development and implementation of POV authority by reviewing available documentation<sup>2</sup> related to MSHA's POV rulemaking processes (1980, 1985, and 1989/1990) as well as subsequent MSHA policy and guidance materials. We reviewed the development of MSHA's *Pattern of Violations Screening Criteria and Scoring Model* (POV model), which was implemented in 2007. We also examined the computer application used by MSHA to implement this model and identify potential POV mines from 2007–2009. Finally, we performed tests to assure that MSHA's enforcement data would produce reliable results when screening for POV mines and performed analyses to demonstrate the impacts of revising the current criteria.

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<sup>1</sup> Senate Report No. 95, 95<sup>th</sup> Congress, 1<sup>st</sup> Session, p. 33 (1977)

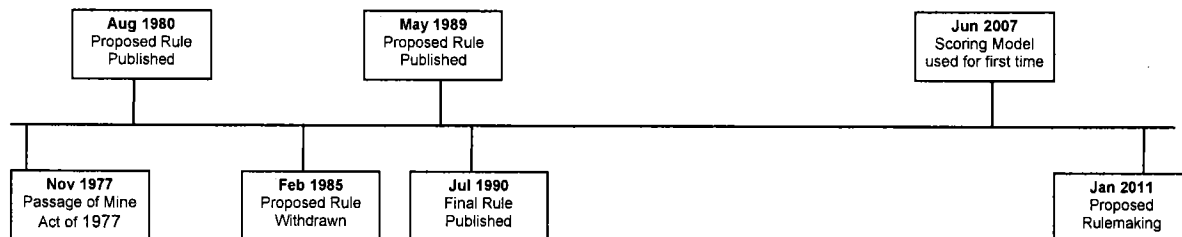
<sup>2</sup> We were limited in our ability to reconstruct events related to the development and implementation of POV authority because some pertinent historical records had been lost or destroyed and because many MSHA personnel involved in these events were no longer available.

**Objective 1 — How did MSHA develop and implement its POV authority?**

*POV rulemaking stalled as stakeholders argued differing views on implementation; MSHA curtailed its own POV authority and rarely tried to use it.*

MSHA started a rulemaking process in 1980, but aborted that process in 1985. MSHA renewed efforts to create regulations in 1989, resulting in a final rule in 1990. MSHA District personnel stated that during the nearly 17 years that followed, they annually used enforcement data and their personal knowledge and experience to evaluate mines for a pattern of violations. However, little documentation exists on how this was done and no mine was placed on POV status during this time. In 2007, MSHA designed and implemented a standard method based on quantitative data for identifying and monitoring mines that showed a potential pattern of violations. Only once during that entire span of time (2008) did MSHA issue a pattern of violations notice to a mine operator. However, because the Federal Mine Safety and Health Review Commission (Commission) subsequently modified some of the citations and orders that caused that POV notice to be issued, MSHA did not enforce the order. MSHA has never successfully exercised its POV authority in 32 years.

The following timeline summarizes the general chronology of MSHA's efforts to develop criteria and guidance related to its POV authority.



Nearly 13 Years of Rulemaking: To identify the criteria and procedures that it would use to notify an operator that a pattern of violations existed, MSHA published the first Proposed Rule related to its POV authority in the *Federal Register* on August 15, 1980. The Proposed Rule explained that a pattern would typically be shown by (1) an unusually large number of S&S violations and little or no indication of improved compliance or (2) a worsening trend of S&S violations indicating a greater than normal risk of disaster, accidents, injuries, or illnesses. It made clear that the determination would not be made mechanically, but would be a documented judgment involving both quantitative and qualitative factors. In support of this concept, the proposed rule called for a District Review Committee, consisting of at least three experienced MSHA employees, to make recommendations to the District Manager about whether a pattern of violations existed at any specific mine.

The Proposed Rule listed 10 factors to consider, at least annually, in identifying mines that were developing a potential pattern of violations. These included the (1) number of

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S&S citations; (2) comparative number of S&S citations in successive inspections; (3) number of citations and orders for unwarrantable failures; (4) number of withdrawal orders for failure to abate S&S violations; (5) number of imminent danger orders resulting from S&S violations; (6) number of recurring S&S violations of the same or related standard; (7) number of violations concerning the submittal of reports or plans, examinations, and training of personnel; (8) operator's accident/injury/illness/fatality incidence rate; (9) inspector's statement for S&S citations and orders; and (10) number of inspection days.

It also listed five criteria to be considered in determining whether a pattern of violations existed, including (1) a chronic recurrence of S&S violations during one or more review periods; (2) MSHA's use of enforcement mechanisms other than 104(a) citations (e.g., withdrawal orders, imminent danger orders) to address S&S violations during a review period; (3) a history of accidents, injuries, illnesses, and fatalities at the mine; (4) lack of management commitment to protecting the safety and health of miners; and (5) extenuating circumstances beyond management's control that strongly mitigate other findings.

Although not required by the Proposed Rule, MSHA stated that it might, as a matter of policy, alert affected mine operators that an initial screening had identified that operator's mine as a potential recipient of a pattern notice, unless the mine's compliance record improved. The Proposed Rule provided a 60-day public comment period, ending October 14, 1980.

On February 8, 1985, more than 4 years after the public comment period ended, MSHA published a withdrawal of the Proposed Rule in the *Federal Register*. MSHA explained that comments it had received were generally in opposition to its implementation because of its complexity, statistical orientation, and vagueness. Some comments stated that it was inappropriate for MSHA to establish a POV regulation at a time that the Commission was redefining the definition of a S&S violation through ongoing litigation (*Secretary of Labor v Cement Division, National Gypsum Co.*, 3 Federal Mine Safety and Health Review Commission 822, April 1981).

In the same *Federal Register* notice, MSHA published an Advanced Notice of Proposed Rulemaking (ANPRM) stating its intention to reconsider appropriate POV criteria and procedures. In developing a new approach, MSHA believed POV criteria should focus on the health and safety record of each mine rather than a comparison of individual mines to industry-wide norms. MSHA envisioned simplified criteria in contrast to the previously proposed rule. MSHA stated that it was focusing on two principal criteria: (1) were S&S violations common to a particular hazard or did S&S violations throughout the mine represent an underlying health and safety problem, and (2) is the mine on a 104(d) unwarrantable failure sequence, indicating that other enforcement measures had been ineffective? MSHA asked for public participation and suggestions in formulating POV criteria and procedures.

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After another 4 years had elapsed, on May 30, 1989, MSHA published a second Proposed Rule for POV in the *Federal Register*. In explaining this new Proposed Rule, MSHA addressed some public comments received in response to the 1985 ANPRM. Specifically, MSHA stated that it (a) did not believe it was appropriate to define what constituted a “significant and substantial” violation in the rule, (b) believed it was appropriate to base POV determinations on only final citations and orders, and (c) believed that it was appropriate to warn operators of a potential pattern of violations prior to issuance of a notice that a pattern existed because of the severity of the sanctions and because it expected that reaching the level of compliance required to terminate a pattern of violations notice “can be expected to be difficult at some mines.” These latter two items were not required by the language in the enabling statute, but amounted to self-imposed restrictions on POV authority by MSHA.

The proposed rule listed several factors to consider, at least annually, in performing an initial screening of mines to evaluate for a pattern of violations. These included (1) the mine’s history of S&S violations, closure orders for failure to abate S&S violations, and imminent danger orders resulting from S&S violations; (2) enforcement actions other than POV that have been used at the mine; (3) evidence of the operator’s lack of good faith in correcting S&S violations; (4) an accident, injury, or illness record that demonstrates a serious safety and health management problem; and (5) mitigating circumstances, if any.

For mines identified by these initial screening criteria, a pattern of violations would be established by then examining a history of S&S violations (1) of a particular standard, (2) standards related to the same hazard, and (3) caused by an unwarrantable failure to comply. Only final citations and orders were to be used to identify mines with a potential pattern of violations.

The Proposed Rule intentionally did not quantify the violations or other factors that would identify a POV mine because MSHA wanted to retain the “flexibility to individually evaluate each mine’s compliance history and particular circumstances....”

In November 1989, MSHA conducted public hearings on the Proposed Rule in Pittsburgh, Pennsylvania and Denver, Colorado. Nine witnesses representing the mining industry and eight representing organized labor testified. The need for a definition of “significant and substantial” was again raised by several mine industry participants. MSHA responded that it would adhere to case law in defining S&S since future case law might modify the meaning. Several participants spoke about MSHA’s plan to use only final citations and orders. Industry supported the concept; organized labor opposed it. MSHA defended the use of final citations and orders as providing a clear notice to operators of which citations and orders MSHA would consider.

In publishing the Final Rule on July 31, 1990, MSHA again addressed concerns about the use of only final citations and orders in the POV criteria. Some comments had raised concerns that this limitation would motivate operators to challenge every S&S citation and order, thus delaying MSHA’s application of its POV authority. However,

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MSHA repeated its position that use of final citations and orders in the pattern criteria provided clear notice to operators of which citations and orders would be used and that “proper notice ... is of paramount importance given the extraordinary nature of the pattern notice.”

The resulting POV regulations (30 Code of Federal Regulations (CFR) 104) remained unchanged from those presented in the Proposed Rule. They included the self-imposed restrictions of (1) using only final citations and orders in determining a pattern of violations and (2) creation of the “potential” pattern of violations warning to mine operators and a subsequent period of further evaluation before exercising the POV authority.

Nearly 17 Years of Decentralized Implementation: From the time POV regulations became effective in October 1990 until mid-2007, POV screening was decentralized and lacked a consistent, structured approach. MSHA District offices were responsible for conducting the required annual POV screening of mines during this period, but never put any mine operator on POV status. While District Managers reported that they had kept files on POV activities during this period, most also stated that those records had been destroyed under MSHA’s record retention policies.

During this period, MSHA Administrators for the Office of Coal Mine Safety and Health (Coal) and Office of Metal/Nonmetal Safety and Health (Metal/Nonmetal) issued occasional memos and policy letters related to POV to their District offices (see Appendix C). The guidance generally reiterated the criteria contained in the regulations, but also created some procedures unique to each program office. Districts were required to annually conduct a screening of all mines to identify those that should receive a potential POV notification. These screenings were to review each mine’s compliance record for the past 24-month period and focus on repeated S&S violations (a) of a particular standard, (b) of standards related to the same hazard, or (c) caused by an unwarrantable failure to comply.

District Managers stated that they involved various District personnel in completing the annual screenings, including Assistant District Managers, Staff Assistants, Program Analysts, Field Office Supervisors, mine inspectors, and investigators. District Managers cited various data sources for conducting the screening reviews including (1) computer printouts showing the mine’s compliance history relative to the types of enforcement action noted in 30 CFR 104.2(a); (2) information in mine files such as prior inspection reports and inspector’s notes; (3) special assessment and enhanced assessment action; (4) special investigation activities; and (5) other information resulting from inspector debriefings.

In August 1992, MSHA identified 10 specific items to be reviewed for each coal mine in conducting a POV screening (Coal Mine Safety and Health (CMS&H) Memo HQ-92-373-S). After completing the screening, Coal District managers were to send a copy of each mine’s compliance record to the mine operator (regardless of whether the District Manager believed that a potential pattern of violations existed) to assist operators in

designing programs to “reverse any unsatisfactory trends.” The transmittal was also to inform the mine operator of the MSHA programs available to assist in improving the mine’s compliance record.

In January 1993, MSHA required that each Coal District complete and send to the Administrator a standard report summarizing the District’s POV activity (CMS&H Memo HQ-93-025-S). It also required that all Potential POV letters be sent in draft to the Administrator’s office for review before issuance to a mine operator.

In April 2002, the Acting Metal/Nonmetal Administrator sent each of his District Managers a list of mines that might meet the criteria for issuance of a notice of potential POV. The mines had been identified through a review of selected enforcement data conducted by the Administrator’s office. District Managers were instructed to (a) review their mine files for each of the listed mines and, after considering specific factors; (b) prepare a warning list, (c) mail warning notices to the identified operators, (d) work with the operators to address repeat violation problems, and (e) report to the Administrator on their efforts. While some District Managers recalled receiving this memo, they did not have records of any actions they had taken.

2007 POV Screening Criteria and Scoring Model: Following the fatal accidents at Sago, Darby, and Aracoma mines in early 2006, MSHA began work on developing a national POV screening process based on quantitative data. MSHA’s Internal Review Report on the Sago mine accident had concluded that POV criteria were ineffective and recommended that MSHA revise its POV screening criteria. The then Assistant Secretary wanted a system that would (a) identify those mines that District Managers saw as “problem mines,” (b) leave little room for subjectivity and criticism from mine operators, and (c) afford mine operators “due process.”

To begin the process<sup>3</sup>, a group of MSHA Headquarters personnel met on several occasions and discussed mine characteristics that might be used as the basis for a more empirical model to identify mines showing a potential pattern of violations. The group discussed different configurations of factors contained in the Initial Screening portion of the POV regulation (30 CFR 104.2). This larger group was ultimately reduced to a “committee of three,” including the then Assistant Secretary.

These three individuals conducted numerous “brainstorming” sessions on various possible criteria. They (a) consulted provisions of the Mine Act (104(e)), the POV regulations (30 CFR 104), and the preamble to that Final Rule; (b) reviewed inspection and violation records for the previous 5-10 years; and (c) used computer applications to manipulate and analyze various enforcement data. They tried different combinations of criteria until they generated a list of mines that they believed MSHA could defend as having been subjected to various enforcement methods, but still were not in compliance.

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<sup>3</sup> MSHA did not prepare or maintain records of this process. As a result, the information presented is based on interviews with two of the three MSHA officials involved in this project. The third participant, the then Assistant Secretary, has since retired and did not make himself available to be interviewed.

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After finalizing the results of their efforts into the POV model, the committee briefed other MSHA officials and representatives of the Office of the Solicitor (SOL). Some District Managers recalled discussions and presentations at meetings about MSHA's decision to unveil and use new POV screening criteria. But generally, District Managers said they first learned of the new POV criteria and a scoring model (Appendix D) when, in June 2007, they received a list of mines in their District that had been identified to receive a notice of a potential Pattern of Violations.

MSHA's Office of Assessments used a computer application based on the newly developed POV model on five separate occasions between June 2007 and September 2009 to generate a list of mines with a potential Pattern of Violations. MSHA officials stated that the screening criteria remained unchanged throughout these five analyses. However, our audit found that in its original use of the POV model, MSHA required that a mine have at least two "elevated enforcement actions" (i.e. 104(b), 104(d), or 107(a)) issued during the most recent 12 months of the review period while in all subsequent uses of the POV model this criteria was changed to at least two "elevated enforcement actions" during the entire 24 month review period. MSHA officials were unaware that this difference had existed and could not explain why the criterion had changed.

Initial Screening Performed by MSHA's POV Computer Application: The five POV analyses that MSHA conducted between June 2007 and September 2009 identified a total of 89 mines as meeting the POV criteria.

POV Cycle	24-Month Period Reviewed	Mines Identified by POV Computer Application		
		Coal	Metal / Nonmetal	Total
1	04/01/05 – 03/31/07	6	2	8
2	10/01/05 – 09/30/07	20	1	21
3	04/01/06 – 03/31/08	15	4	19
4	01/01/07 – 12/31/08	24	2	26
5	09/01/07 – 08/31/09	14	1	15
<b>Total</b>				<b>89</b>

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MSHA uses the following status codes to classify mines:

Status Code	Definition
Active	A mine that operates on a full-time basis.
Abandoned	A mine that will be abandoned for the foreseeable future.
Abandoned / Sealed	A mine that has been permanently abandoned and sealed.
Intermittent	A mine that can reasonably be expected to operate sometime during the year. These operation times vary due to the demand for product or seasonal conditions.
New Mine	A mine that has been assigned a Mine ID but no physical development has begun.
Non-Producing / Active	A mine where production has not yet begun or has ceased, but employees perform some work at the mine.
Temporarily Idle	A mine that has been temporarily idled (used by Coal only).

Workers can still be present in mines that are not in an “active” status. For example, mines in a “non-producing/active” status may have workers performing maintenance or other tasks in the mine. Mines in an “intermittent” status would likely have workers in the mine at various times of the year.

It is important to note that in performing these initial screenings, MSHA automatically excluded any mine not in an “active” status. As a result, eight additional mines that met all of MSHA’s stated POV screening criteria were not considered for potential POV evaluation during the five analyses because they were in a status other than “active.” Specifically, 5 mines were in a “non-producing/active status” and 3 were in a “temporarily idle” status. While it may be appropriate to remove a mine from the potential POV list after the initial screening process based on the consideration of non-quantitative factors, MSHA should not have excluded a mine during the initial screening process simply because it was not in an “active” status.

MSHA’s responsibility is to assure that mine operators protect all workers from mining hazards at all times, regardless of whether a mine operates on a full-time basis or is producing any product at all. Whenever workers are present in a mine, the possibility of safety hazards and a pattern of violations exist. Thus, MSHA’s exclusion of certain mines from POV analysis by restricting its initial screening process to only mines in an active status potentially placed workers at risk.

Based on the computer application results for each POV analysis, the Director of the Office of Assessments then provided the relevant list of mines, including related data from the POV model, to the Coal and Metal/Nonmetal Administrators. The Administrators divided the lists by responsible district office and forwarded the information to the appropriate District Managers. The Administrators’ typically (a) identified the mine(s) to be reviewed, (b) provided the detailed data for each mine related to the model’s selection criteria, (c) provided a copy of the POV model, and

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(d) summarized the process to be followed, including a timeline of critical milestone dates.

District Managers first reviewed their list of mines and could, if they deemed it appropriate, provide a written recommendation to their Administrator that a mine not receive a potential POV notification letter based on mitigating circumstances. As discussed in the following section, such recommendations did occasionally occur for various reasons. According to District Managers, they included other District personnel (e.g., Assistant District Managers, Supervisors, Program Analysts, etc.) in evaluating the mines prior to making this decision. The final decision to exclude an identified mine rested with the Administrators.

Twenty-One Mines Excluded from Potential POV Notification: Of the 89 mines originally identified by MSHA's POV computer application from 2007-2009, 21 did not receive potential POV notification letters for reasons summarized below.

Reason for Excluding a Mine from Potential POV Notification	# of Mines Excluded
Quantity limits established by MSHA management	10
Mine had closed or ceased production	3
Recent improvements based on potential POV notice in prior period	6
Recent improvements based on prior potential POV status at related mine	1
Rulings by the Commission changed potential POV finding	1
<b>Total</b>	<b>21</b>

As we reported in a separate Alert Memo to MSHA's Assistant Secretary (see Appendix E), 10 coal mines were inappropriately excluded because of limits established by MSHA management. Additional audit work showed that these limits were only established in Cycles 4 and 5. In Cycle 4, the Coal Administrator, with the concurrence of the then Deputy Assistant Secretary for Operations sent a letter to his District Managers instructing them to "... select no more than one mine on the initial screening list per field office and a maximum of 3 mines per district." In Cycle 5, the Coal Administrator, after again conferring with the then Deputy Assistant Secretary for Operations, sent a letter to his District Managers instructing them to "... select no more than two mines on the initial screening list per field office." Although the Metal/Nonmetal Administrator used the same letter to his District Managers in Cycle 5, the limitation had no practical impact because so few Metal/Nonmetal mines appeared on the potential POV list. MSHA management viewed these limits as necessary because of resource concerns about the extensive time and effort required to monitor each mine.

In responding to our Alert Memo (see Appendix F), the Assistant Secretary agreed that certain mines may have been removed from potential POV lists in the past for reasons other than appropriate consideration of health and safety conditions at those mines. He stated his intention that "... decisions about PPOV and POV enforcement actions will be based solely on what is best for the safety and health of the miners" and that "... MSHA

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*will never be placed in a situation where a mine operator avoids being placed on a POV because MSHA lacks resources.”*

He also stated, however, that MSHA did not anticipate that all mine operators identified through a quantitative or formulaic process would always be placed in POV status. He reasoned that these decisions should always be a combination of initial screening methods and a case-by-case consideration of potential mitigating factors.

Furthermore, he pointed out that MSHA continued to conduct an array of inspection activities at the mines identified in our report to protect the safety and health of miners. He added that MSHA had had significant inspector presence at all these mines since the decisions not to place them in potential POV status. Nevertheless, he had requested that MSHA inspect *“every one of the producing coal and metal nonmetal mines that were listed by the OIG as having not been placed in potential POV status following an initial screening that identified them as PPOV eligible.”* The subsequent inspections<sup>4</sup> resulted in MSHA issuing 63 104(a) citations (including 26 that were S&S) and 1 order.

MSHA also provided detailed information about recent inspection activities and results at each of the mines that had been removed from potential POV lists. MSHA reported that 8 of the 10 mines excluded from potential POV status because of resource limitations had subsequently improved their rate of S&S citations and orders, while 2 mines actually had increased their rate of S&S citations and orders.

The OIG agrees that POV determinations should not be confined to purely quantitative analyses. The experience, knowledge, and professional judgment of MSHA personnel are important factors in all aspects of a successful enforcement program. However, decisions based on available resources, rather than safety and health considerations, are inappropriate and contrary to the spirit and letter of the Mine Act. It is also important that MSHA define and implement a process for documenting all factors – both quantitative and non-quantitative – used to make POV decisions.

Sixty-Eight Mines Sent Potential POV Notification Letters: For the five POV screenings performed from 2007-2009, District Managers sent notification letters to 68 mine operators. These letters provided the operators with the mine’s specific data related to MSHA’s screening criteria and explained the POV evaluation process, including the operator’s ability to (a) request a conference with the District Manager and (b) submit a written plan for improving their rate of S&S violations.

If requested, the District Manager was required to conduct a conference with the operator within 10 days. If the operator submitted a written corrective action plan, the District Manager reviewed it and provided feedback, if necessary, to the operator (see Objective 2, p. 14 for a further discussion of MSHA’s review of these corrective action plans). Inspectors then conducted a “Regular Safety and Health Inspection” of the entire mine within 90 days of the date the operator submitted the written corrective action plan.

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<sup>4</sup> MSHA conducted inspection at fourteen mines. Six additional mines were not inspected because they had been placed in non-producing, temporarily idle, or abandoned status.

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According to District Managers, they monitored these inspections along with their Assistant District Managers and Field Supervisors. In one District that we visited, the District Manager received and reviewed every citation (and the related inspector's notes) issued to the potential POV mines.

After the District had begun this inspection, MSHA's Office of Assessments produced and sent the District Offices a weekly report for each potential POV mine showing that mine's rate of S&S citations and orders since the beginning of the inspection. The report also showed the two improvement metrics that MSHA tracked in determining whether a mine had sufficiently improved to avoid POV status. Mines had to either reduce their rate of S&S citations and orders (1) by 30 percent or (2) to the national average for mines of a similar type and classification.

At the conclusion of the inspection, the District Managers provided a written recommendation to their Administrator of whether each potential POV mine had met improvement goals to avoid being placed in POV status.

Nine Mines Recommended for POV Notice: Of the 68 mines that received potential POV notification letters, District Managers recommended that 9 be given a POV notice after completing the evaluation period. However, for a variety of reasons listed below, MSHA did not enforce its POV authority against any of these mines.

# of Mines	Reason POV Recommendations Did Not Result in POV Notice
3	S&S citations / orders modified as a result of review by and conferences with the Department's SOL*
2	S&S citations / order modified by the Commission prior to issuance of POV notice
1	New mine owner was granted additional time to implement improvements
2	Metal/Nonmetal Administrator decided not to issue a POV notice based on non-quantitative factors (e.g., employee training, safety audits conducted by the mine operator)
1	S&S citations / orders modified by the Commission after issuance of POV notice

\* Anticipating that mine operators would challenge MSHA's determinations, SOL attorneys reviewed all S&S citations issued to those mines recommended by a District Manager for POV status. Conferences were held with the Administrator and District enforcement personnel to discuss any concerns that the SOL attorneys had about the appropriateness or defensibility of the S&S designation on a citation or order. These discussions sometimes resulted in citations or orders being modified, on the advice of the SOL attorneys, to remove the S&S designation.

Efforts to Redesign the POV Criteria and Procedures: In November 2009, MSHA began internal discussions about the need to revise the pattern of violations criteria and procedures. In testimony before the U.S. House Committee on Education and Labor on February 23, 2010, the Assistant Secretary stated:

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To encourage mine operators to take more responsibility for the safety and health of their workers, MSHA will evaluate ways to improve the use of effective mine safety and health management programs by mine operators, particularly those that may be subject to the application of the pattern of violations criteria pursuant to section 104(e) of the Mine Act.

We are ... reviewing the current pattern of violation criteria contained in [regulations] ... considering a review of the pattern of violation process to determine whether our current approach is the best one for providing timely protection for miners.

In its Semiannual Regulatory Agenda posted April 26, 2010, MSHA described plans to issue a Notice of Proposed Rulemaking by January 2011 to

... review [pattern of violations] regulations with the goal of simplifying them to improve the process and to improve consistency in the application of the pattern of violations notice.

In summary, during the 32 years that MSHA has had Pattern of Violations authority, it has never successfully used it against a mine operator. MSHA allowed the rulemaking to stall as stakeholders argued differing views on implementation. Moreover, for many years after regulations were in place MSHA relied on District personnel to interpret and carry out those regulations. Only during the past few years had MSHA used a standardized method based on quantitative data for identifying potential POV mines. However, those analyses have proven to be complex and unreliable. Moving forward it is imperative for MSHA to ensure that POV criteria and procedures are transparent and well reasoned.

**Objective 2 — Did MSHA timely and consistently review and monitor mine operators' POV corrective action plans?**

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*Operator corrective action plans were given little importance in MSHA's POV process.*

POV Regulations give a mine operator "*reasonable opportunity*" (i.e., up to 20 days after receiving notification of a potential pattern of violations) to "*institute a program to avoid repeated significant and substantial violations at the mine*" (30 CFR 104.4). The regulations do not require a written plan. However, MSHA's policy, established through the *Pattern of Violations Procedures Summary* described the regulation as an opportunity to submit "... a **written corrective action plan** to institute a program to avoid repeated significant and substantial violations at the operation" [text bolded for emphasis]. Even though MSHA has not provided written guidance to either their own personnel or to mine operators about the nature or content of these written corrective action plans, we were told by MSHA officials (at both the national and district levels) that plans should address the specific areas (e.g., ventilation, roof control, coal dust, etc.) that caused a mine to be identified as having a potential pattern of violations.

If a mine operator did submit a written corrective action plan, MSHA's subsequent inspection of the mine was to be completed within 90 days "from the date the operator submitted the corrective action plan." However, if an operator did not submit a written corrective action plan, MSHA was to complete an inspection within 60 days from the date of the issuance of the notification of potential Pattern of Violations. Thus, by submitting a written plan, no matter how minimal its content, a mine operator obtained additional time before MSHA made a determination of the mine's POV status.

Most mine operators chose to submit a written corrective action plan. But our review of a sample of written corrective action plans submitted to two MSHA Coal districts showed that plans accepted by MSHA ranged from a one-page memo with several brief bulleted action statements to an 80+ page document.

While MSHA District personnel did review and discuss with mine operators the plans they submitted, MSHA did not approve, disapprove or otherwise monitor these plans. In addition, the nature and basis of MSHA's reviews also varied based on each District Manager's interpretation of the POV criteria and process.

MSHA did not verify the implementation of an operator's written POV corrective action plan. In fact, District Managers told us that unlike other mine plans that an operator is required to submit for MSHA's approval (e.g., roof control plan, ventilation plan, training plan, etc.) the corrective action plan is not an enforceable plan. Rather, MSHA's monitoring and evaluation of a mine it had identified for potential POV status was primarily focused on the rate of S&S violations issued during a subsequent inspection of the entire mine regardless of whether a corrective action plan was submitted or implemented. As a result, MSHA could not demonstrate that these corrective action plans had any role in subsequent declines in violation rates.

Since mine operators receive a benefit from submitting a written corrective action plan (i.e., additional time to address safety and health violations), MSHA needs to assure that the plan is more than a perfunctory exercise and consider whether these plans should be required.

**Objective 3 — Did MSHA's POV computer application contain errors in addition to the one identified and reported by MSHA after the Upper Big Branch Mine-South accident?**

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*Three logic errors caused unreliable results from POV computer application.*

MSHA's POV computer application, implemented in 2007 in connection with the POV model, contained logic errors, inconsistencies with the stated selection criteria, and one other anomaly. These deficiencies occurred because the computer application was not developed, tested, maintained, and documented in the disciplined and structured manner normally associated with major computer applications. Because MSHA's enforcement data changes constantly and MSHA did not maintain historic copies of the

data, we could not run a corrected program against the same enforcement data that MSHA used in completing the five POV analyses from 2007–2009. Therefore, it was not possible to determine whether these computer application discrepancies affected the specific outcomes of those analyses. However, we were able to demonstrate that correcting these deficiencies produced significantly different results when run against a “test” copy of MSHA’s enforcement data. Since MSHA does not intend to use the current computer application for future POV analyses, these discrepancies should have no direct impact on future POV analyses. However, it is important to understand the types of problems that occurred in the past in order to prevent them in any future development process. See Appendix G for the technical details of the items summarized below.

Overview of MSHA’s POV Computer Application: MSHA’s POV model was based on a computerized summary and analysis of selected enforcement data contained in MSHA’s Standardized Information System (MSIS). Each night, MSHA creates a Data Warehouse from information in MSIS.<sup>5</sup> The Data Warehouse is available through MSHA’s network to authorized MSHA users for use in performing a wide variety of analyses, including POV screening.

The POV computer application actually consisted of three components: (1) a Basic query program (consisting of 46 individual sub-queries) and Repeat Violations query program used to extract and summarize data from the Data Warehouse, (2) an electronic spreadsheet that receives the extracted data and computes additional data values based on the extracted data, and (3) filters in the electronic spreadsheet that screen out mines that do not meet specified criteria. The program was designed to produce a list of mines that meet all of MSHA’s initial screening and pattern criteria.

MSHA used the POV computer application to produce a list of potential POV mines on five separate occasions for the 24-month periods ending:

- March 31, 2007 (Cycle 1)
- September 30, 2007 (Cycle 2)
- March 31, 2008 (Cycle 3)
- December 31, 2008 (Cycle 4)
- August 31, 2009 (Cycle 5)

MSHA used the same logic and programming syntax for all five cycles. However, because MSHA could not locate a copy of the electronic spreadsheet produced in Cycle 1, it was not possible to validate the formulas and filters used during that cycle.

On April 13, 2010, following the Upper Big Branch Mine-South accident, MSHA discovered and reported a logic error in the Basic query program. MSHA reported the error incorrectly excluded Upper Big Branch Mine-South from the list of potential POV mines produced in Cycle 5, and did not affect any other underground coal mines.

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<sup>5</sup> Prior to August 2008, MSHA updated its Data Warehouse on a weekly basis.

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Logic Errors: In all five cycles for both Coal and Metal/Nonmetal, 4 of 46 sub-queries in the Basic query and the Repeat query contained a value that could have caused a vacated citation to be counted as if it were a valid, final citation. As a result, the program could have over counted citations for a specific mine.

In all five cycles for both Coal and Metal/Nonmetal, 5 of 46 sub-queries in the Basic query were missing a value that could have caused citations and orders associated with a prior owner of the mine to be counted as if they were associated with the current owner. As a result, the program could have overcounted citations for a specific mine.

In Cycles 3–5 for Metal/Nonmetal, the electronic spreadsheet formula intended to provide the total number of S&S 104(d) final orders at each mine for the 24-month review period incorrectly sums two columns that represent the 104(d) final orders that may contain 104(d) final orders that are not S&S. As a result, the list of potential POV mines may have included a mine that did not meet the screening criteria for S&S 104(d) final orders.

Misstated Criteria: In all five cycles for both Coal and Metal/Nonmetal, the logic in 2 of 46 sub-queries in the Basic query did not count all 104(b) orders (failure to abate) as required by one of MSHA's stated screening criterion. The screening criterion stated that a mine had to have "A minimum of two 'elevated enforcement' final orders of the Commission, [i.e., type action is 104 (b), 104 (d) or 107 (a)] during the 24-month review period." But, the program logic only counted final 104(b) orders if they were issued to replace an S&S citation or order.

Since the stated criterion did not restrict 104(b) actions to only those that replaced an S&S citation or order, we initially concluded that the program was potentially excluding 104(b) orders that should have been counted. But MSHA officials stated that the program logic correctly represented what MSHA had intended. According to MSHA, the published criterion was misstated and should have been written as "A minimum of two 'elevated enforcement' final orders of the Commission, [i.e., type action is 104(b) replacing an S&S citation, 104(d) or 107 (a)] during the 24-month review period."

Similarly, in Cycles 2–5 for both Coal and Metal/Nonmetal, two separate formulas in the electronic spreadsheet were inconsistent with MSHA's stated screening criteria. One screening criteria stated that a mine had to have at least 10 (surface and facility) or 20 (underground) S&S citations issued during the review period. Another stated that a mine had to have at least 10 (surface and facility) or 20 (underground) S&S citations that were final orders of the Commission during the review period. However, the formulas that tested these values used the Boolean operator "greater than" (>). To correctly match the stated criteria, the Boolean operator should have been "greater than or equal to" (≥).

We initially identified this as a logic error. But MSHA officials stated that these formulas also correctly represented what MSHA had intended the screening criteria to be.

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According to MSHA, the published criterion was misstated and should have been written as “more than” instead of “at least.”

Given MSHA’s statements, the queries and formulas used did not require correction. However, these misstatements resulted in mine operators and the public having an incorrect understanding of the screening criteria being used by MSHA to identify mines with a potential POV.

Anomaly: In Cycles 3-5 for both Coal and Metal/Nonmetal, we identified one other concern with an electronic spreadsheet formula that, while not an error in programming logic, contains a risk of producing incorrect results.

The formula matches each mine identification number against mine identification numbers in a separate list of mines having more than five S&S violations of the same standard. This list of repeat violations is produced by the Repeat Violations query and varies in length for each POV cycle. If a match is found, the number of repeat violations is placed in the spreadsheet cell. For the formula to work properly, it must define the location of the list of mines to be searched. In each spreadsheet used in Cycles 3 – 5, the formula used the parameters of the list produced in Cycle 2, which resulted in the formula defining an area that was larger than the actual list to be searched. Since the defined area was larger than the actual list, no error resulted. However, had the Repeat Violations query produced a list longer than the one used in Cycle 2, the formula would have incorrectly ignored the data outside the stated parameters. This situation indicates a lack of proper controls in maintaining the integrity of the spreadsheet formulas.

Logic Errors Impact Which Mines Are Put on Potential POV Lists: Because MSHA’s Data Warehouse is updated daily and MSHA does not maintain historic copies of the Data Warehouse, it was not possible to perform a POV analysis against the enforcement data as it existed on the days that MSHA had performed its five past POV analyses (Cycles 1-5). Therefore, we could not determine what, if any, specific changes would have resulted from correcting the errors that we identified and re-performing those analyses.

However, to demonstrate that these changes could produce results different from MSHA’s uncorrected program, we ran both MSHA’s uncorrected program and the OIG’s corrected program against a copy of the Data Warehouse as of May 10, 2010.

MSHA’s uncorrected program produced a list of 17 mines for potential POV evaluation – 12 coal mines and 5 metal/nonmetal mines. The OIG’s corrected program, run against the exact same data, produced a list of 21 mines for potential POV evaluation – 16 coal mines and 5 metal/nonmetal mines.

The resulting lists of metal/nonmetal mines were identical. However, for the analysis of coal mines, the MSHA list contained one mine that was not on the OIG list and the OIG list contained five mines that were not on the MSHA list.

The magnitude and nature of the variations in results between the uncorrected and corrected applications would likely fluctuate if run on various dates over a period of time. This would be caused by changes in the enforcement data, specifically to the data elements impacted by the identified errors. However, the test results show that the unidentified logic errors had a potential to incorrectly include mines that had not met the POV screening criteria or exclude mines that had met the POV screening criteria.

As MSHA moves forward with its plans to redesign the POV screening criteria and procedures, it is critical that any related computer application provide accurate results. To minimize the risks of unreliable results caused by programming errors, MSHA must develop, test, maintain, and document any POV computer application in a structured and disciplined manner.

**Objective 4 — Was MSHA's enforcement data sufficiently reliable to support accurate POV analysis?**

*Data reliability tests discovered no deficiencies in accuracy or completeness, but delays in laboratory test results are a problem.*

We found nothing in our various system and data test results to question the overall reliability of the data used by MSHA to perform the initial screening and pattern of violations determinations under its POV model. We did, however, identify delays in MSHA's testing of rock dust samples in underground coal mines that could cause critical delays in MSHA identifying serious safety hazards.

Data Reliability: We successfully tested the data entry controls and a statistical sample of data records for the key data elements that MSHA used in performing its POV screenings from April 1, 2008–March 31, 2010. Nothing in the test results raised concerns about the reliability of the data.

MSHA's POV computer application used 70 unique data elements from MSHA's Data Warehouse to analyze each mine's enforcement history against the screening criteria in MSHA's POV model (see Appendix H for a complete listing of these data elements). Based on the manner and the number of times each data element was used by the computer application, we determined that 55 of the 70 data elements were key in determining program's results. These key data elements were collected into the integrated MSIS through five different input systems as summarized below.

Input Entry Control Point	# of Key Data Elements
IPAL (inspector laptop)	30
MSIS User Interface - Enforcement Interface	2
MSIS User Interface - Assessment Interface	6
MSIS e-Gov Interface	12
MSIS User Interface - Part 50 Interface	5
<b>Total</b>	<b>55</b>

Focusing on the 55 key data elements, we documented (a) the data processing steps and data flows and (b) the control points, objectives, and techniques.

We successfully completed tests of these five input entry points for consistency, effectiveness in validating data, and reporting of errors for correction prior to data acceptance. The testing included value checking by entering blanks, non-numeric, non-alpha, out-of-range, and illogical relationships.

We also successfully completed tests for accuracy and completeness of a random statistical sample of active mine information covering the 55 key data elements, including tracing to source information and/or initial input.

Delays in Testing Rock Dust Samples: While evaluating controls over various data input sources, we identified occasional delays in MSHA's testing of rock dust samples at its National Air and Dust Laboratory (NADL) in Mt. Hope, West Virginia. While these delays did not impact the overall reliability of enforcement data used in the POV model, they did increase the risk that MSHA did not timely identify serious safety hazards in underground coal mines.

Safety standards (30 CFR 75.402) require mine operators to "rock dust" mines to dilute the coal dust in the mine atmosphere and prevent the propagation of coal dust explosions. This typically involves dusting of underground areas with powdered limestone. Rock dusting must assure that the incombustible content of coal dust, rock dust, and other dust is maintained at prescribed minimum levels (30 CFR 75.403).

Since mine inspectors do not currently have a way to measure compliance with this standard on-site during an inspection, they collect and send samples to the NADL. Using a standard protocol, lab personnel tested the samples and reported the results to the mine inspector via email. Based on the reported results, the inspector determined whether a violation had occurred and a citation should be issued.

According to lab personnel, fluctuating workloads and the laboratory's recent participation in the National Institute for Occupational Safety and Health (NIOSH) evaluation of a portable Coal Dust Explosibility Meter (CDEM), have affected how quickly rock dust samples are tested after they are received. During the spring and summer months, rock dust samples are normally tested and the results are reported to mine inspectors in 2-3 days. However, during fall and winter months, inspectors collect a higher volume of samples because cold air dries out mine surfaces and increases the risk of explosions. During these periods of increased risk and workload, it could take 2-3 weeks to test and report results. MSHA has had no performance standard for the timeliness of testing these samples. In addition, during MSHA's participation in the NIOSH project, normal lab tests were sometimes delayed until after samples could first be tested with the CDEM.

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We have no evidence that coal dust contributed in any way to the accident at Upper Big Branch Mine-South on April 5, 2010. But the handling of rock dust samples from Upper Big Branch Mine-South illustrates the critical importance of completing these tests in a timely manner<sup>6</sup>.

On March 15, 2010, a mine inspector collected 14 rock dust samples from Upper Big Branch Mine-South during an inspection. NADL's laboratory tests on those samples were not completed for more than three weeks – this was two days after the April 5, 2010 accident. The results showed that one of eight samples tested (six samples contained too much moisture to test) did not meet regulatory standards. Based on these results, MSHA issued an S&S citation on April 13, 2010. The chronology of events related to these samples is summarized in the following table.

<b>Chronology of Events</b>	
<b>Testing of Rock Dust Samples from Upper Big Branch Mine-South</b>	
<b>Date</b>	<b>Event</b>
03/15/2010	Mine inspector collected rock dust samples at mine
03/16/2010	NADL received rock dust samples
03/31/2010	MSHA personnel tested rock dust samples using CDEM as part of NIOSH project
04/05/2010	Accident at Upper Big Branch Mine-South
04/06/2010	NADL personnel prepared rock dust samples for NADL testing
04/07/2010	NADL personnel completed tests of rock dust samples
04/08/2010	NADL transmitted rock dust test results to mine inspector via email
04/13/2010	MSHA issued S&S citation for violation of 30 CFR 75.403

On July 29, 2010, in response to our concern that NADL lacked a performance standard for timely testing and reporting of rock dust samples, the Coal Administrator directed lab personnel to implement procedures to assure that rock dust samples were tested and the results were reported to mine inspectors within 19 calendar days of being received at the lab.

Although MSHA took prompt action on the concern we raised, 19 days does not convey an appropriate level of urgency for completing tests related to a mine's compliance with a standard for preventing the propagation of coal dust explosions. If samples can be tested in 2–3 days during portions of the year, it seems unreasonable to set a standard that allows testing to take up to six times longer during the time of the year when the associated risk is greatest.

<sup>6</sup> The OIG provided information we gathered on the Upper Big Branch Mine-South rock dust samples to MSHA's Accident Investigation team, which is ultimately responsible for determining the cause of the accident. We also provided it to MSHA's Internal Review team, which is examining MSHA's actions with respect to this mine.

**Objective 5 — How Would the Results of MSHA's POV Model be Affected by Changes in the Current Criteria?**

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*Some criteria significantly changed screening results and improvement success.*

It is MSHA's responsibility to determine the criteria and procedures that best identify mines having a pattern of violations. In an effort to provide information that may be helpful in MSHA's stated goal to revise the current criteria and procedures, we conducted several "what if" analyses aimed at demonstrating the impact of various changes to the current criteria on the number of mines (a) identified as having a potential Pattern of Violations and (b) meeting MSHA's improvement metrics.

Modifying Some Screening Criteria Significantly Affects Results: MSHA's POV model required that a mine meet all of the 10 defined screening criteria to be identified as having a potential POV. Eliminating or modifying some of these individual criteria significantly impacted the number of mines identified as having a potential POV, while others had little impact.

We used a static copy of MSHA's Data Warehouse (as of May 10, 2010) and MSHA's current POV model to produce a list of potential POV mines as a baseline. For each scenario we eliminated or modified one or more of the existing criteria and ran the revised computer application against the same Data Warehouse to produce a new list of potential POV mines. We compared the results of each scenario against the baseline results to measure the extent to which the number of mines identified increased or decreased (see Appendix J).

Eliminating the POV model's requirements for final orders resulted in the most significant change. This modification (scenario 12) produced a list of 91 potential POV mines versus the baseline list of 16. Reducing the period of enforcement actions reviewed from 24 months to 12 months (scenario 11) produced significant changes in both new mines being added to the baseline list (+20) and original mines dropped from the baseline list (-12); 9 mines remained the same.

Other scenarios that produced significant increases in the number of mines identified for potential POV analysis included (1) eliminating or reducing the ratio of citations/orders issued in the second year of the review period to the first year of the review period (scenarios 3 and 3a), (2) eliminating the comparison of a mine's rate of S&S citations to the national rate for similar mine (scenario 4), and (3) eliminating the requirement for at least one final S&S citation for an unwarrantable failure (scenario 7).

Eliminating the requirement for at least 10 S&S citations (surface mines and facilities) or at least 20 S&S citations (underground mines) had no effect on the results (scenario 1).

Fewer Potential POV Mines Met MSHA's Improvement Metrics Over Extended Evaluation Periods: While most potential POV mines met MSHA's improvement metrics

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within the first inspection period following receipt of their notification letter, fewer mines would have satisfied those standards if evaluated over a longer period of time.

MSHA monitored and evaluated the rate of S&S citations and orders at mines given a potential POV notification for the period covering one complete inspection following the notification. Mine operators must have met either of two metrics: (1) reduce the rate of S&S citations and orders by at least 30 percent, or (2) reduce the rate of S&S citations and orders to at least the national average for similar mines. In most cases, the first standard was the easier one to meet. For the mines that received potential POV notification letters from MSHA from 2007-2009 and whose rate of S&S citations and orders were subsequently monitored by MSHA<sup>7</sup>, 61 out of 65 (94 percent) successfully met one of the improvement metrics.

To evaluate whether mine operators sustained improvement levels beyond the first inspection period, we used the same computer application used by MSHA to compute each potential POV mine's rate of S&S citations for two additional inspection periods. The results indicate that as the evaluation period is extended, fewer mines satisfy the required improvement metrics. After two inspection cycles, 56 out of 63 (89 percent) still satisfied one of the improvement metrics. After three inspection periods, the success rate decreased to 51 out of 60 (85 percent).

We performed a similar analysis for 8 of the 10 mines<sup>8</sup> that MSHA excluded from the Potential POV lists because of limits set by MSHA management. Because they were not sent potential POV notification letters, these mines were not subjected to the specific POV monitoring or improvement metrics. After one inspection period, 3 of 8 (38 percent) mines had met one of the improvement metrics. At the end of the second inspection period, the success rate remained at 3 of 8 (38 percent). For the mines that had completed a third inspection period, 3 of 6 (50 percent) met the improvement metrics. Results indicate that a much lower percentage of these mines met MSHA's improvement metrics than those subjected to the potential POV evaluation process.

Changes to MSHA's criteria for identifying potential POV mines can result in significantly different results. Therefore, as MSHA moves to revise its POV enforcement program it is critical for MSHA to ensure that POV selection criteria are transparent, reasoned, and suitable for identifying mines whose owners demonstrate the "disregard for the health and safety of miners through a pattern of violations" as intended by Congress. In addition, MSHA should examine its current process for monitoring mine operators to increase the likelihood that improvements are not temporary.

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<sup>7</sup> MSHA did not evaluate mines that had ceased operations or that were under new ownership.

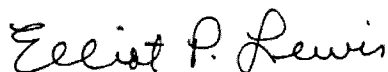
<sup>8</sup> Two mines were excluded from our analysis because they were under new ownership.

## RECOMMENDATIONS

We recommend that the Assistant Secretary for Mine Safety and Health:

1. Evaluate the appropriateness of eliminating or modifying limitations in the current regulations, including the use of only final orders in determining a pattern of violations and the issuance of a warning notice prior to exercising POV authority.
2. Seek stakeholders' input (e.g., miners, miner representatives, mine operators, etc.) in the development of POV screening criteria, but assure that the process, including rulemaking, is not stalled or improperly affected because of competing viewpoints.
3. Assure that POV selection criteria are sufficiently transparent to allow stakeholders to reasonably determine an individual mine's status at any point in time.
4. Assure that POV decisions are based solely on the health and safety conditions at each mine.
5. Implement a standard process for documenting all factors – both quantitative and non-quantitative – used to make POV decisions.
6. Establish guidance on the preparation, review, and monitoring of mine operators' POV corrective action plans.
7. Eliminate the requirement that mines be in an "active" status to be screened for a pattern of violations.
8. Use system development life cycle techniques (analysis, design, test, implement, and maintain) to reduce the risk of errors in any POV-related computer application.
9. Re-evaluate the performance standard for timely completion of laboratory tests on rock dust or any other samples that yield enforcement related data, including addressing workload fluctuations and resources needs.
10. Examine its current process and metrics for monitoring the improvement of potential POV mines to increase the likelihood that improvements are not temporary.

We appreciate the cooperation and courtesies that MSHA personnel extended to the OIG during this audit. OIG personnel who made major contributions to this report are listed in Appendix M.



Elliot P. Lewis  
Assistant Inspector General  
for Audit

U. S. Department of Labor – Office of Inspector General

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## Appendices

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**Appendix A****Background**

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The Mine Safety and Health Administration (MSHA) enforces compliance with mandatory health and safety standards as a means to eliminate fatal accidents, reduce the frequency and severity of nonfatal accidents, minimize health hazards, and promote improved safety and health conditions in the Nation's mines. As required by the Mine Act, as amended by the Mine Improvement and New Emergency Response Act of 2006, MSHA inspectors conduct recurring inspections of every mine; issuing citations or closure orders when they observe violations. Citations and orders result in monetary penalties to mine operators based on the nature and severity of the offense. During calendar year (CY) 2009, MSHA inspections at the Nation's more than 14,000 surface and underground mines resulted in more than 175,000 citations/orders and assessed monetary fines of approximately \$141 million.

Among the enforcement tools available to MSHA through the Mine Act is the authority to take enhanced enforcement actions when a mine operator demonstrates a pattern of S&S violations at a mine. After notifying a mine operator that such a POV exists, MSHA has the authority to order the withdrawal of miners from areas of the mine affected by any S&S violation until the violation is abated.

MSHA defined the implementation of POV authority through regulations (30 CFR 104) in 1990. From 1990 until early 2007 MSHA applied the authority in a decentralized manner through its district offices. In 2007, MSHA developed and implemented a POV model on a national basis. Using an empirical analysis of enforcement data, the model identified mines showing a potential pattern of violations based on MSHA's selected criteria.

On February 23, 2010, in testimony before the House Committee on Education and Labor, MSHA's Assistant Secretary stated that MSHA was reviewing the POV criteria contained in the current regulations and was considering a review of its POV process.

On April 5, 2010, MSHA publicly announced an accident at Performance Coal Company's Upper Big Branch Mine-South in Montcoal, West Virginia resulted in the deaths of 29 miners. Public and media scrutiny of the mine's record of safety and health violations raised questions about (a) why MSHA had not exercised its POV authority against Performance Coal Company at Upper Big Branch Mine-South, and (b) whether MSHA's POV process was effectively identifying repeat violators.

On April 13, 2010, MSHA announced that an error in the computerized tools it had developed to execute its POV model had caused Upper Big Branch Mine-South to incorrectly be omitted from the most recent list of potential POV mines. This raised additional questions about the accuracy of MSHA's analysis and the reliability of the underlying enforcement data.

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In an April 15, 2010 letter, several Members of Congress requested that the OIG review and report on MSHA's development and implementation of its POV authority, including the accuracy of the current POV model and its underlying data.

On April 27, 2010, testifying before the Senate Committee on Health, Education, Labor and Pensions, MSHA's Assistant Secretary concluded that "the current 'pattern of violations' process is broken and must be fixed."

**Appendix B****Objectives, Scope, Methodology, and Criteria**

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**Objective**

The OIG performed an audit to assess what progress MSHA had made in implementing the Pattern of Violations (POV) authority contained in the Federal Mine Safety and Health Act of 1977.

Specifically, we conducted audit work to determine (a) how MSHA had developed its POV rules, criteria, and procedures and implemented its POV authority; (b) whether MSHA timely and consistently reviewed and monitored mine operators' POV corrective action plans; (c) whether MSHA's POV computer application contained errors in addition to the one identified and reported by MSHA after the Upper Big Branch Mine-South accident; (d) whether MSHA's enforcement data was sufficiently reliable to support accurate POV analysis; and (e) the effects on the results of MSHA's POV model from various changes in the criteria.

**Scope**

Our audit work covered MSHA's development, implementation, and use of POV authority from its inception in the Mine Act (1977) through May 10, 2010. Our work related to the reliability of MSHA's enforcement data included 70 data elements from MSHA's Data Warehouse that were used by MSHA's POV computer application.

We performed audit work at MSHA's National Office in Arlington, Virginia, MSHA's Data Center in Lakewood, Colorado, and in MSHA District offices in Morgantown, West Virginia; Mt. Hope, West Virginia; and Dallas, Texas.

We conducted this performance audit in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

**Methodology**

To determine how MSHA developed POV regulations, criteria, and procedures, we reviewed available documentation related to MSHA's rulemaking processes (1980, 1985 and 1989/1990), including the proposed POV regulations, public comments, and the final regulations. Limited records were available. MSHA's Office of Standards, Regulations, and Variances (OSRV), which coordinates MSHA's regulatory work, is responsible for maintaining appropriate records. OSRV was able to provide us with inventory lists for 15 boxes of "non-permanent" records related to various MSHA

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rulemaking activities between 1977 and 1989, including those related to POV. However, OSRV could not account for the whereabouts of the associated records.

OSRV had prepared these records to be sent to storage at the Federal Records Center, but could not provide evidence that they had actually been sent. The Federal Records Center had no evidence of having received the records. Even had these records been transferred to the Federal Records Center, it is likely that they would have been destroyed prior to our audit under guidelines of MSHA's "Consolidated Records Disposition Schedule" for Standards and Regulations. According to MSHA's records inventory lists, these non-permanent records included items such as a POV concept paper, written public comments on the 1980 and 1985 proposed rules, an interagency decision memo concerning MSHA's withdrawal of the 1980 proposed rule, and guidelines for designating violations as "significant and substantial."

In addition, our search of 27 boxes of "permanent" MSHA records at the Federal Records Center found nothing related to POV, even though one box's inventory sheet was labeled "Pattern of Violations."

MSHA provided us with copies of transcripts from the two public hearings it held in 1989 as part of its POV final rulemaking process. It obtained these copies from the United Mine Workers of America.

We also reviewed policy and guidance materials that MSHA issued after the implementation of the POV regulations. We interviewed two of the three MSHA staff involved in developing the POV model and summarized any related documentation<sup>9</sup>.

To determine how MSHA had implemented its POV authority for the period October 1, 1990, to present, we conducted interviews of 16 of 17 MSHA District Managers using a standard set of questions. We did not interview the District Manager in Coal District 1 because no mine in his District had been identified by MSHA's POV model as having a potential POV and because the District Manager was leading MSHA's Internal Review of the Upper Big Branch Mine-South accident, so his availability was very limited. We also visited Coal Districts 3 and 4 and the Metal and Nonmetal South Central District, interviewed relevant District staff, and reviewed all available records related to their POV activities. For potential POV mines MSHA identified in its computer analysis, we determined the reasons MSHA did not send potential POV letters to certain mines.

To measure the affects on MSHA's current POV model from various changes to its criteria, we developed and executed a series of "what-if" scenarios. We created a baseline result by executing MSHA's current POV computer application (corrected for error identified in our audit) against a static copy of MSHA's Data Warehouse (as of May 10, 2010). For each "what-if" scenario, we eliminated or revised one or more of the

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<sup>9</sup> The third MSHA participant in this process was the then Assistant Secretary for Mine Safety and Health. Despite our repeated efforts, we were unable to obtain his participation in this audit.

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existing selection criteria, ran the revised computer application against the same copy of MSHA's Data Warehouse, and compared the results against the baseline results.

To evaluate whether potential POV mines monitored by MSHA maintained improved rates of S&S citations and orders beyond the one inspection period evaluated by MSHA, we used MSHA's computer application to calculate S&S rates for each potential POV mine for two additional inspection cycles and compared the results against the two improvement metrics used by MSHA.

To determine if MSHA was timely and consistently reviewing and monitoring mine operators' POV corrective action plans (CY 2007 to present), we interviewed the District Managers from 16 of 17 MSHA districts that had notified at least one mine of potential POV status during this period. These interviews summarized how these districts interacted with the notified mine operators and how the districts monitored an operator's progress in improving the mine's violation rate during the designated improvement period. During site visits to MSHA Coal Districts 3 and 4, we reviewed mine corrective action plans submitted by mine operators.

To determine if MSHA's POV computer application contained unidentified errors, we reviewed (a) the logic and syntax (i.e., queries) used to extract and summarize data from MSHA's historical enforcement data, (b) the formulas used in electronic spreadsheets to perform tests and computations on the extracted data, and (c) the filters used in electronic spreadsheets to apply MSHA selection criteria against the analytical results for the five analyses that MSHA completed from 2007-2009<sup>10</sup>.

Specifically, to analyze the queries we (a) reviewed a user manual for MSHA's query software; (b) reviewed data dictionaries, data field attributes, and relevant handbook sections provided by MSHA; (c) evaluated the underlying formulas; and (d) prepared process flow charts. When necessary, we obtained explanations from knowledgeable MSHA personnel. To analyze the formulas spreadsheets used in the POV analysis<sup>11</sup> and for the weekly reports<sup>12</sup>, we reviewed all formula logic and syntax based on explanations from knowledgeable MSHA personnel on their intended purpose. To analyze the spreadsheet filters, we compared MSHA's POV selection criteria to the filter logic and syntax. To demonstrate the impact of any identified errors on the mines identified for potential POV notification, we created a baseline by executing MSHA's POV analysis against a copy of MSHA's Data Warehouse produced by MSHA on May 10, 2010. After making appropriate revisions to the queries, formulas, and filters we executed the corrected POV analysis against the same set of data and compared the results to the baseline.

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<sup>10</sup> For the 24-month periods ending March 31, 2007, September 30, 2007, March 31, 2008, December 31, 2008, and August 31, 2009.

<sup>11</sup> MSHA was not able to provide the POV analysis spreadsheet for the 24 months ending March 31, 2007 because it did not maintain the original analysis, only the results.

<sup>12</sup> MSHA only used the weekly report queries and spreadsheet for the 24 month period ending August 31, 2009. For all previous POV analysis, MSHA used a query and report combination using the query software.

To determine the reliability of data used in MSHA's POV analysis, we used an approach consistent with the Government Accountability Office's *Assessing the Data Reliability of Computer-Processed Data*, (GAO-09-680G, July 2009, External Version I). Based on a detailed review we judged 55 of the 70 data elements used in MSHA's POV computer application to be key in determining whether a mine demonstrated a potential pattern of violations. The 55 key data elements reside in the Data Warehouse as a result of various sources and input processes, including intermediary systems' processing and data bases prior to final update to the Data Warehouse (see Appendix I for related Data Flow Diagram).

We performed the data reliability assessment, focused primarily on the 55 key data elements, by (a) interviewing knowledgeable MSHA computer and program operations personnel about the key data elements, processes and related controls; (b) identifying the sources of the key data elements; (c) documenting the data processing steps and data flows; (d) documenting the control points, objectives, and techniques; (e) testing data entry control points for enforcement, assessments, and accident, injury, employment and production data; and (f) selecting a random statistical sample of active mine information covering the 55 key data elements to determine the accuracy and completeness of the data, including tracing to source information and/or initial input.

We tested each primary input entry point covering the 55 POV key data elements for consistency, effectiveness in validating data, and reporting of errors for correction prior to data acceptance. The testing included value checking by entering blanks, non-numeric, non-alpha, out-of-range, and illogical relationships.

We verified the accuracy and completeness of the 55 POV key data elements using a sampling of active mine data covering the period April 1, 2008, through March 31, 2010. We used a random sampling method with stratified design, where appropriate, to provide effective coverage of the units and to obtain precise estimates of the characteristics tested at a 95 percent confidence level and 5 percent error. Auditors traced and compared values in key data element fields in MSHA Data Warehouse to information from source documentation and/or initial input entry points and/or related data bases (i.e., MSIS and Sungard data bases).

## **Criteria**

Federal Mine Safety and Health Act of 1977, as amended

Miner Improvement and New Emergency Response Act of 2006

30 CFR Part 104 – Pattern of Violations

Federal Register, Volume 54, No. 102 (May 30, 1989) – Pattern of Violations Proposed Rule

Federal Register, Volume 55, No. 147 (July 31, 1990) – Pattern of Violations Final Rule

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Senate Report No. 95-181, Federal Mine Safety and Health Act of 1977

MSHA Program Policy Manual, Volume III, Part 104, Pattern of Violations  
(Release III-22, February 2003)

MSHA Pattern of Violations Procedures Summary

MSHA Pattern of Violations Screening Criteria and Scoring Model

Government Accountability Office, Standards for Internal Control in the Federal  
Government, November 1999

National Institute of Standards and Technology Special Publication 800-53 Revision 2,  
December 2007.

National Institute of Standards and Technology Special Publication 800-53 Revision 3,  
August 2009.

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## Appendix C

## MSHA Documents Related to Pattern of Violations Authority

Document Type	Effective / Issued Date	Subject	From	To
Program Policy Letter P91-III-1	04/08/91	Guidelines for the Implementation of Pattern of Violations	Coal and Metal/Nonmetal Administrators	All MSHA employees
CMS&H Memo HQ-92-373-S	08/05/92	Enforcement Strategy and Procedures, including Pattern of Violations	Coal Administrator	Coal District Managers & Division Chiefs
CMS&H Memo HQ-93-025-S	01/29/93	Pattern of Violations Procedures and Reporting to MSHA Headquarters	Coal Administrator	Coal District Managers
Program Policy Letter P93-III-1	Re-issuance of PPL P91-III-1	Guidelines for the Implementation of Pattern of Violations	Coal and Metal/Nonmetal Administrator	All MSHA employees
Program Policy Manual, Vol III	05/16/96	Interpretations and Guidelines on Enforcement of the Mine Act – POV		All MSHA employees
CMS&H Memo HQ-96-107-S	07/26/96	Clarification on Enforcement Procedures	Coal Administrator	Coal District Managers
CMS&H Memo HQ-97-050-S	05/13/97	Pattern of Violations Procedures	Coal Administrator	Coal District Managers
Procedure Instruction Letter I99-V-11	03/29/99	Review of Respirable Coal Mine Dust Citations for a Pattern of Violations	Coal Administrator	Coal Enforcement Personnel

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**Appendix D**

**MSHA's Pattern of Violations Screening Criteria and Scoring Model**

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Criteria #1

At least 10 S&S Citations/Orders, at mines classified as Surface and Facility, **issued** during the 24-month review period. At least 20 S&S Citations/Orders, at mines classified as Underground, **issued** during the 24-month review period.

Criteria #2

At least two "elevated enforcement" actions, [i.e. type action is 104 (b), 104 (d) or 107(a)], **issued** during the 24-month review period.

Criteria #3

The ratio of Citation/Orders **issued** in the most recent 12 months of the review period to the number of Citations/Orders **issued** during the previous 12 months of the review is 70% or greater.

Criteria #4

The mines' rate of S&S Citations/Orders **issued** per 100 inspection hours during the 24-month review period is equal to or greater than 125% of the National rate of S&S Citations/Orders **issued** per 100 inspection hours for that mine type and classification.

Criteria #5

The number of S&S Citation/Orders **issued** per 100 inspection hours during the last two quarters is greater than the Industry Average for this mine type and classification **OR** the number of elevated enforcement Citations/Orders **issued** per 100 inspection hours during the last two quarters is greater than the Industry Average for this mine type and classification.

Criteria #6

A minimum of two "elevated enforcement" **final orders** of the Commission, [i.e. type action is 104 (b), 104 (d) or 107(a)] during the 24-month review period.

Criteria #7

At least one S&S 104 (d) issuance that became a **final order** of the Commission during the 24-month review period.

Criteria #8

At least 10 S&S Citations/Orders, at mines classified as Surface or Facility, that are **final orders** of the Commission during the 24-month review period. At least 20 S&S Citations/Orders, at mines classified as Underground, that are **final orders** of the Commission during the 24-month review period.

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Criteria #9

The information used to screen mines includes a **raw weighted score** for each operation meeting the above criteria as follows:

- a. The number of S&S citations and orders issued per 100 Inspection Hrs. that became **final** during the 24-month review period times the weight assigned to this factor; plus
- b. the number of 104(b) (failure to abate) orders issued per 100 Inspection Hrs. for failure to abate an S&S issuance that became **final** during the 24-month review period and multiplying by a factor of 5; plus
- c. the number of 104(d) (unwarrantable failure) citations and orders issued per 100 Inspection Hrs. that became **final** during the 24-month review period and multiplying by a factor of 5; plus
- d. the number of 107(a) (imminent danger) orders issued<sup>13</sup> per 100 Inspection Hrs. during the 24-month review period and multiplying by a factor of 5.

This **raw weighted score** is increased by:

- e. 5%-20% for operations with injury rates above the national average for the same mine type and industry grouping as follows:

**Degree 1-4 Injury Rate (IR) Multipliers**

<i>IR Greater than Nat'l. Avg. and less than or equal to 2 times the Nat'l. Avg.</i>	<i>IR Greater than 2 times the Nat'l. Avg. and less than or equal to 3 times the Nat'l. Avg.</i>	<i>IR Greater than 3 times the Nat'l. Avg. and less than or equal to 4 times the Nat'l. Avg.</i>	<i>IR Greater than 4 times the Nat'l. Avg.</i>
<b>5%</b>	<b>10%</b>	<b>15%</b>	<b>20%</b>

- f. 5%-20% for operations with injury severity rates (number of days lost X 200,000 divided by the total work hours reported) above the national average for the same mine type and industry grouping as follows:

**Degree 1-4 Injury Severity Rate (ISR) Multipliers**

<i>ISR Greater than Nat'l. Avg. and less than or equal to 2 times the Nat'l. Avg.</i>	<i>ISR Greater than 2 times the Nat'l. Avg. and less than or equal to 3 times the Nat'l. Avg.</i>	<i>ISR Greater than 3 times the Nat'l. Avg. and less than or equal to 4 times the Nat'l. Avg.</i>	<i>ISR Greater than 4 times the Nat'l. Avg.</i>
<b>5%</b>	<b>10%</b>	<b>15%</b>	<b>20%</b>

<sup>13</sup> Imminent Danger orders are not assessed and thus do not become "final orders" of the Commission. Therefore, the number of Imminent Danger orders issued is used in this score.

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- g. 5%-20% for operations with **final** S&S citations and orders per 100 inspection hours (Violations per Inspector hour (VPIH)) above the 24-month national average for the same mine type and industry grouping as follows:

VPIH Multipliers

<i>VPIH Greater than Nat'l. Avg. and less than or equal to 2 times the Nat'l. Avg.</i>	<i>VPIH Greater than 2 times the Nat'l. Avg. and less than or equal to 3 times the Nat'l. Avg.</i>	<i>VPIH Greater than 3 times the Nat'l. Avg. and less than or equal to 4 times the Nat'l. Avg.</i>	<i>VPIH Greater than 4 times the Nat'l. Avg.</i>
<b>5%</b>	<b>10%</b>	<b>15%</b>	<b>20%</b>

The final weighted score must be greater than or equal to the average weighted score for all active mines of the same mine type and industry classification.

Criteria #10

Meet one of the following pattern criteria: (1) a history of repeated S&S violations of a particular standard; (2) a history of repeated S&S violations of standards related to the same hazard; or (3) a history of repeated S&S violations caused by unwarrantable failure to comply. Only citations and orders that are final may be considered in determining if these criteria have been met. For a Pattern of Violations review, mines must have at least five S&S citations of the same standard that became **final orders** of the Commission during the most recent 12 months.

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Appendix E

**OIG Alert Memo – MSHA Set Limits on the Number of Potential Pattern of Violation Mines to be Monitored**

**U.S. Department of Labor**

Office of Inspector General  
Washington, DC. 20210



June 23, 2010

MEMORANDUM FOR: JOSEPH A. MAIN  
Assistant Secretary  
for Mine Safety and Health

*Elliot P. Lewis*

FROM: ELLIOT P. LEWIS  
Assistant Inspector General  
for Audit

SUBJECT: **Alert Memorandum: MSHA Set Limits on the  
Number of Potential Pattern of Violation Mines to be  
Monitored**  
Report No. 05-10-004-06-001

The purpose of this memorandum is to alert you to a matter related to MSHA's past implementation of its Pattern of Violation (POV) authority that requires immediate corrective action. The results included in this interim report are based on our limited work to date. Fieldwork is continuing and we will provide overall results when our audit work is complete.

MSHA's POV activity addresses mines with an inspection history of recurrent significant and substantial violations of mandatory safety or health standards that demonstrate a mine operator's disregard for the health and safety of miners. In 2007, MSHA implemented its POV Screening Criteria and Scoring Model to identify potential POV mines. In March 2009 when the Coal Mine Safety and Health (CMS&H) Administrator notified his District Managers of mines meeting the POV screening criteria (including scores for each mine) he directed them to **"select no more than one mine on the initial screening list per field office and a maximum of 3 mines per district."** We were told this guidance was necessary to address resource limitations. However, this instruction set a limit that was inappropriate for this enforcement program.

MSHA's initial screening process allowed program Administrators to remove mines from the original list based on a written justification from the District Manager. Our preliminary review of information provided by MSHA shows that MSHA performed five POV analyses between 2007 and 2009. Those analyses identified 89 mines for potential POV status. For a variety of reasons (not yet

Working for America's Workforce

MSHA's Pattern of Violations Authority  
Report No. 05-10-005-06-001

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validated through audit procedures), MSHA officials removed 21 of these mines from the initial screening lists. Mines that were removed did not receive letters notifying them of potential POV status nor did MSHA monitor these mines for improved rates of significant and substantial violations.

The stated reason for removing some mines appears reasonable. For example, we were advised that three mines were removed because they were no longer producing coal. However, it appears that CMS&H removed at least 10 mines<sup>1</sup> because of the limit established by the CMS&H Administrator's instruction.

<b>Potential POV Mines 2007 - 2009</b>			
<b>Analysis Date</b>	<b># of Mines Identified by POV Screening Criteria and Scoring Model</b>	<b># of Mines Removed From Initial Screening List (All reasons)</b>	<b># of Mines Removed From Initial Screening List Because of Limits Set by CMS&amp;H</b>
Jun-07	8	-	-
Dec-07	21	1	-
Jun-08	19	4	-
Feb-09	26	11	9
Sep-09	15	5	1
<b>Totals</b>	<b>89</b>	<b>21</b>	<b>10</b>

We are very concerned about mines removed for reasons other than appropriate consideration of the health and safety conditions at those mines. MSHA is not subjecting these mines to the enhanced oversight that accompanies potential POV status, yet it does not have evidence that they had reduced their rate of significant and substantial violations. As a result, miners may be subjected to increased safety risks.

Although MSHA has suspended use of its POV Screening Criteria and Scoring Model while it evaluates possible revisions, we recommend that MSHA immediately re-evaluate the appropriate POV status of the 10 mines that were previously removed from POV oversight and monitoring based on the CMS&H limits. We also recommend that MSHA assure that on future POV analysis all decisions to include or remove mines from POV-related enforcement efforts are based solely on the health and safety conditions at each mine.

We request that you take action and respond to this report within 10 days on actions taken. Please contact Charles Allberry, Audit Director, MSHA Audits, at (312) 353-2416, if you have any questions.

<sup>1</sup> Total includes nine individual mines; one mine was removed in two separate cycles.

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## Appendix F

## MSHA's Response to OIG Alert Memo

U.S. Department of Labor

Mine Safety and Health Administration  
1100 Wilson Boulevard  
Arlington, Virginia 22209-3939



JUL 06 2010

## MEMORANDUM FOR ELLIOT P. LEWIS

Assistant Inspector General for Audit

FROM:

JOSEPH A. MAIN *Joseph A Main*  
Assistant Secretary of Labor for  
Mine Safety and Health

SUBJECT:

MSHA's 10-day Response to OIG's Alert Memorandum: MSHA  
Set Limits on the Number of Potential Pattern of Violation Mines  
to be Monitored Report No. 05-10-004-06-001

Thank you for the opportunity to respond to your Alert Memorandum, *MSHA Set Limits on the Number of Potential Pattern of Violation Mines to be Monitored*. I welcome the independent analysis provided by the Office of Inspector General (OIG) to improve the fundamentally flawed pattern of violation (POV) process that was put in place by the previous administration. As you are aware, the pattern of violations process, including the potential pattern of violations (PPOV) screening process that the OIG is currently investigating is no longer in use, and I can assure you that this process will not be used again.

We have reviewed the alert memorandum and are providing the Mine Safety and Health Administration's (MSHA) 10-day response as requested in your memorandum of June 23, 2010. In immediate response to your memo, I requested that MSHA inspect every one of the producing coal and metal and nonmetal mines that were listed by the OIG as having not been placed in PPOV status following an initial screening that identified them as PPOV eligible. As a result, MSHA conducted inspections at 14 mines during the week of June 28, 2010, and issued 63 104(a) citations, of which 26 were S&S, and 1 order. The remaining 6 mines from the list of '21' (2 were repeat mines), are either in non-producing, temporarily idled or abandoned status.

Your memorandum highlighted your concern that "mines were removed for reasons other than appropriate consideration of the health and safety conditions at those mines." We agree that this may have been the case in certain mines and we are committed to make sure that this will not be the case in the future. Our review of the mines identified in your Alert Memorandum indicated that there were, in addition, a number of factors taken into consideration following the initial screening, consistent with previously established policy. Some mines were not put into PPOV status because there was a change in ownership. The POV program focuses on mine operators; thus a bona fide change in ownership resulted in the initiation of a new time period for consideration of violations. In another instance, the OIG incorrectly identified a mine that it said did not receive a PPOV notice letter. The PPOV notice was sent but withdrawn on July 17,

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2008, due to the decision by the Federal Mine Safety and Health Review Commission to reopen certain citations and that these affected citations would no longer be treated as final orders of the Commission for pattern purposes. Information about each of the mines included in your Alert Memorandum is included in the attachment.

Our review of the PPOV screenings in question found that although mines were previously excluded from POV oversight and not placed in potential POV status, the District Managers were notified of all mines meeting the screening criteria in effect at that time, and scores were provided for each mine. As such, District managers were made aware that these mines were problematic and of their screening scores.

The memorandum stated that MSHA did not "...subject these mines to the enhanced oversight that accompanies potential POV status..." MSHA continued to conduct a broad array of inspection activities at these mines to protect the safety and health of the miners. MSHA also has had significant inspector presence at all these mines since the decisions not to place them in PPOV status. An attachment to this memo details the number of inspection activities, including regular safety and health inspections, spot inspections, technical inspections and other investigations, as well as the inspector time on-site at each of these producing mines since the 2009 screenings and the decisions not to place them in PPOV status. There have been no fatalities at these mines since the mines were removed from the potential POV list 2009.

The alert memorandum indicated that MSHA "... does not have evidence that they had reduced their rate of significant and substantial violations. As a result, miners may have been subjected to increased safety risks." MSHA district managers continually monitor operator compliance and S&S rates of mines under their jurisdiction. MSHA does have relevant evidence that we will be happy to provide to you if you request it.

The career leadership at MSHA was following the existing policies in place prior to my arrival at MSHA. I do not agree with these policies. Going forward, decisions about PPOV and POV enforcement actions will be based solely on what is best for the safety and health of the miners, within legal and regulatory constraints.

Under the POV system in place during the time frame addressed by the audit, placing a mine within PPOV status required a significant time investment from key staff. Listed below are some details on the requirements for supervising and monitoring the PPOV process established during the prior administration. The process involved oversight and review responsibilities for headquarters personnel, District Managers, Assistant District Managers, Field Office Supervisors, Staff Assistants, Conference and Litigation Representatives (CLRs), and inspectors. This oversight and review was not only directed at the mine operator, but also at MSHA's citation process, and included:

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- Preparing written notification to the mine operator, reviewing initial written responses from the operator, evaluating enforcement data regarding the mine, and preparation of headquarters acknowledgement letters;
- Meeting with the mine operator and miners representatives;
- Reviewing the mine operator's action plan to reduce S&S violations;
- Ongoing evaluation and monitoring of the mine through inspections and inspection oversight, which could include field office supervisors making weekly visits during the 90-day evaluation period and review of weekly POV updates;
- Participating in meetings with operators to evaluate the mine's progress;
- Conducting detailed citation evaluations to ensure that if POV status was triggered that the underlying citations were properly written;
- Increasing CLR review of citations, including conferences with the operator, as well as written and oral communication between the CLR, the inspectors and the District Manager to ensure that any potential case against a pattern violator was based on properly written citations; and
- Working with headquarters and the regional and MSH-Division Solicitors on the merits of the S&S citations issued under POV.

#### Action Plan

As noted above, in immediate response to your memo, I requested that MSHA perform special inspections at every one of the producing coal and metal and nonmetal mines that were listed by as having not been put into PPOV status after the initial screening found them eligible. As a result, MSHA conducted inspections at 14 mines during the week of June 28, 2010, and issued 63 104(a) citations, of which 26 were S&S, and 1 order. The remaining six mines from the list of '21' (two were repeat mines), are either in non-producing, temporarily idled or abandoned status.

I share your concern that district managers were asked to limit the number of mines to be placed in potential POV status, especially in MSHA's District 4 in southern West Virginia which has the highest concentration of coal mines in the country. The better response, in my opinion, would have been to split District 4, so that all the mines that need attention can receive attention. This is a position that we are advocating and exploring to address the workload issued in District 4.

The fundamental problem here is that the POV system is badly broken. That is why we are fully committed to fixing the system as quickly as possible. First, we are attempting to determine all policies that have guided this program since its inception. This information will be of benefit as we rewrite the existing MSHA policies governing POV prior to the next round of POV decisions later this year. This will ensure that the first POV determinations under my watch will be handled differently. Second, we announced in April our intention to rewrite the POV regulations. While that won't be done by October, we are working to provide this longer term improvement. Third, we

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will continue to work with Congress to provide a legislative fix to the POV system. We do not believe the current system reflects Congress' intentions and have been working with Congressional representatives to fix this problem. Attached is a copy of Proposed Legislative Changes to Protect the Safety of All Workers and Prevent Future Disasters prepared by the offices of the Senate Committee on Health, Education, Labor and Pensions the House Committee on Education and Labor Senator Rockefeller and Representative Rahall. The recently introduced Mine Safety and Health Act of 2010 proposes changes to address the problems with the current law regarding POV mines.

We intend, going forward, that MSHA will never be placed in a situation where a mine operator avoids being placed on a POV because MSHA lacks resources. However, MSHA, like all law enforcement agencies, must continue to use professional judgment and discretion in utilizing the resources it has. Appropriate resource utilization will involve the creation of a screening system that will identify mines that chronically fail to implement proper health and safety controls. The mines that are screened into a pool for consideration will then be carefully examined in order to confirm the accuracy of the data used and to assure that their current conditions merit inclusion in this enhanced enforcement program. We do not anticipate that all mine operators crossing a certain quantitative or formulaic threshold for POV consideration will *always* be placed in POV status. Rather, our expectation is that there will be legitimate case-by-case situations where mine operators are not placed on a POV because of qualitative and human factors that present mitigating circumstances. For example, such mitigating circumstances might include a mine operator with a recently-implemented safety program that legitimately improves mine safety or one that has substantially changed its safety performance for the better despite its POV score that was based on historical practices.

It is critical that MSHA focus its POV enhanced inspection resources on those mine operators that have chronically failed to protect the safety and health of the miners and that continue to put miners at risk. In cases where mines are screened into a pool for POV consideration, excluding mine operators from POV must be a matter of *informed* rather than arbitrary consideration. A final determination should require both a screening and confirmatory process, including a review of other factors as described above (significant changes in health and safety at mines, change of ownership, etc.) to assure the correct mines are selected. MSHA will make every effort to ensure as transparent a process as possible.

As with all issues you are examining related to the POV, we strongly encourage your auditors to engage MSHA officials in open and ongoing dialogue regarding the factors that should be involved in screening mines for POV consideration and ultimately placing a mine in POV status. We appreciate the willingness and commitment expressed by your office to work with MSHA and provide information throughout this review process

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that will be helpful in designing the screening process. The assistance of your office will help assure that the re-designed process will provide greater protection to the nation's miners.

If you have any questions, please contact Brent Carpenter (202) 693-9782 or Melinda Pon (202) 693-9516.

Attachments

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**Attachment: Mines noted by the Inspector General as having met initial screening criteria for PPOV consideration that were not put in PPOV status**

**District 3, Bridgeport, WV Field Office**

***\*Sentinel Mine (4604168), Wolf Run Mining Company, International Coal Group Inc.***

Following the February 2009 screening the mine implemented proactive efforts to reduce the noncompliance in the areas of rock dusting and electrically-related violations. The mine has succeeded in significantly reducing its S&S rate.

Sentinel Mine received 123 inspection events including five regular health and safety inspections, 94 103(i) spot inspections (for excessive methane), nine technical inspections, four hazard complaint investigations, and six non-injury/non-fatal accident investigations. MSHA has had 780 inspection days at this mine (3897.75 on-site inspection hours) and there have been no fatalities at this mine since the mine was not placed in PPOV status following the February 2009 screening<sup>†</sup>.

A spot inspection was conducted on June 28, 2010, and no violations were found.

***Broad Run Mine (4609136), Big River Mining LLC, Coalfield Transport, Inc.***

Broad Run Mine is currently in non-producing status. Broad Run was identified as a PPOV mine in February 2009 and again in September 2009. MSHA did not provide a PPOV notice letter to the operator in the September 2009 cycle because the mine had taken proactive steps to reduce its S&S rate, repeat violations and elevated negligence actions. Before Broad Run went into non-producing status, the mine received 14 inspection events including four regular safety and health inspections, two hazard complaint investigations, one non-injury accident investigation, and five technical inspections. MSHA has had 334 inspection days at this mine (1665.25 on-site inspection hours) since September 2009, and there have been no fatalities since the mine was not placed in PPOV status following the February 2009 screening.

**District 4, Logan, WV Field Office**

***\*No. 1 Mine (4605978), Jacob Mining LLC, Wolford Jeffrey***

Although identified in the February 2009 for PPOV consideration, this mine was not put in PPOV status at that time. Since then, No. 1 Mine had a change of ownership on July 2, 2009. The mine is now Bronzite III, Consol Energy Inc. The POV program focuses on mine operators; thus a bona fide change in ownership results in the initiation of a new time period for consideration of violations.

\* Mines identified by OIG as not on PPOV status due to resource limits. Two mines repeated (Copley Trace Surface Mine and Deep Mine No. 8)

† All inspection data as of June 15, 2010.

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Bronzite III received eight inspection events including three regular health and safety inspections, two spot inspections and one technical inspection. MSHA has had 44 inspection days at this mine (216.50 on-site inspection hours) since the ownership change and there have been no fatalities since this mine was not placed in PPOV status following the February 2009 screening.

No violations were found during a spot inspection conducted on June 28, 2010.

***Coalburg No. 2 Mine (4608570), Rio Group, Inc., Richard H. Abraham***

Following the February 2009 screening, Coalburg No. 2 substantially reduced its S&S violation rate.

Coalburg No. 2 Mine received 10 inspection events including six regular health and safety inspections, two spot inspections, one hazard complaint investigation one technical inspection, and an impact inspection. MSHA conducted an impact inspection at Coalburg No. 2 Mine during the week of April 19 – 23, 2010, and issued a total of seven enforcement actions, including two S&S citations. MSHA has had 174 inspection days at this mine (868.25 on-site inspection hours) and there have been no fatalities since the mine was not put in PPOV status following the February 2009 screening.

A spot inspection was conducted on June 28, 2010, and three 104(a) citations were issued (one was S&S).

***Copley Trace Surface Mine (4608704), Argus Energy WV, LLC, James H. Booth***

Copley Trace mine was identified for PPOV consideration in the February 2009 and September 2009 screenings. Following the September 2009 screening Copley Trace Surface Mine's S&S rate was essentially stable.

This surface mine received five inspection events including two regular health and safety inspections, one spot inspection and two hazard complaint investigations since the February 2009 screening. MSHA has had 80 inspection days at this mine (399 on-site inspection hours) and there have been no fatalities since the mine was not placed in PPOV status following the February 2009 screening.

A spot inspection conducted on June 28, 2010, resulted in the issuance of one 104(a) S&S citation.

***Pond Creek Mine No. 1 (4608715), KVV Operations LLC, Robert Helton***

Pond Creek Mine No. 1 was identified in February 2009 for PPOV consideration. Following the February 2009 screening, the mine reduced its S&S rate.

Pond Creek Mine No. 1 received 10 inspection events including five regular health and safety inspections, two technical inspections, and one hazard complaint investigation. MSHA has had 73 inspection days at this mine (363 on-site inspection hours). There

have been no fatalities since the mine was not put in PPOV status following the February 2009 screening.

A spot inspection was conducted on June 28, 2010, and four 104(a) citations were issued (two of which were S&S).

***Deep Mine No. 8 (4608994), Argus Energy WV, LLC, James H. Booth***

Deep Mine No. 8 received PPOV notification letters during two previous PPOV screenings in November 2007 and May 2008. The mine achieved the S&S goals for the respective November 2007 and May 2008 PPOV cycles. The PPOV screening process again identified the mine for PPOV consideration in February 2009. MSHA did not provide a PPOV notice letter in February 2009 in light of the mine's previous PPOV status and S&S reductions. An additional consideration was that the screening used the two-year history but also included the six months that the operator developed and implemented the action plan. Following the February 2009 screening, Deep Mine No. 8 Mine's S&S rate increased.

Deep Mine No. 8 has received nine inspection events including five regular health and safety inspections, one hazard complaint investigation, one non-injury/non-fatal accident investigation and one Part 50 audit. MSHA has had 170 inspection days at this mine (848 on-site inspection hours) and there have been no fatalities since not being placed in PPOV status following the February 2009 screening.

A spot inspection conducted on June 28, 2010 resulted in three 104(a) citations (one was S&S) and one order.

***Surface No. 1 (4608249), Stollings Truck Co., Inc., Rhonda Marcum***

Surface No. 1 was identified for PPOV consideration mine in the February 2009 and September 2009 screenings. The mine was placed in PPOV status during the February 2009 cycle and achieved the necessary S&S reduction for this period. MSHA did not provide a PPOV notice letter to the operator in the September 2009 cycle because the mine had taken proactive steps to reduce its S&S rate. Following the February 2009 screening, Surface No. 1's S&S rate declined substantially.

Surface No. 1 Mine received four inspection events, including two regular safety and health inspections and one spot inspection. MSHA has spent 34 inspection days (167.25 on-site inspection hours) at this mine since September 2009, and there have been no fatalities at this mine since being placed in PPOV status following the February 2009 screening.

A spot inspection conducted June 29, 2010, identified no violations.

**District 4, Madison, WV Field Office*****\*Black Castle Mining Co. (4607938), Elk Run Coal Co., Massey Energy***

Black Castle Mining was identified for PPOV consideration in February 2009. Following the February 2009 screening, Black Castle's S&S rate decreased substantially.

Since the screening, Black Castle Mine received 13 inspection events, including three regular health and safety inspections, three spot inspections, three hazard complaint investigations, and two non-injury/non-fatal accident investigations. MSHA has had 169 inspection days at this mine (840.75 on-site inspection hours) and there have been no fatalities at this mine since not being placed in PPOV status following the February 2009 screening.

A spot inspection was conducted on June 28, 2010, and two 104(a) citations were issued (one of which was S&S).

***\*Justice #1 (4607273), Independence Coal Co., Massey Energy***

Justice #1 was identified as for PPOV consideration in November 2007 and in February 2009. In November 2007, Justice #1 was placed in PPOV status and achieved the S&S goal for the PPOV cycle. When it was identified again in the February 2009 screening, the mine was not issued a PPOV notification letter. Following the February 2009 screening, Justice #1's S&S rate increased.

Justice #1 received 90 inspection events including five regular health and safety inspections, 73 103(i) spot inspections (for excessive methane), four spot inspections, two technical inspections, four hazard complaint investigations, four non-injury accident investigations and one Part 50 audit. MSHA has had 485 inspection days at this mine (2,423 on-site inspection hours) and there have been no fatalities at this mine since it was not placed in PPOV status following the February 2009 screening.

Justice was one of the mines targeted by MSHA as part of the April 2010 special impact inspections. MSHA conducted an impact inspection at Justice #1 Mine during the week of April 19 – 23, 2010 and issued 42 enforcement actions, including 25 S&S citations.

A spot inspection was conducted at this mine on July 1, 2010 and eight citations were issued (one was S&S). On June 19, 2010, the mine was issued a 103(k) order and shut down due to a roof fall on the slope (primary escapeway); the 103(k) order was terminated on July 1, 2010.

***\*Allegiance Mine (4608735), Independence Coal Co., Massey Energy***

Allegiance Mine was not placed in PPOV status following the September 2009 screening. At the time, the operator had recently placed the mechanized mining unit in non-producing status and had made recent significant improvements to the overall ventilation of this mine.

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Allegiance Mine received four inspection events, including three regular health and safety inspections and one non-injury accident investigation. MSHA has had 167 inspection days (833.75 on-site inspection hours) and there have been no fatalities at this mine since it was not placed in PPOV status following the September 2009 screening.

A spot inspection conducted on June 29, 2010, resulted in the issuance of one S&S citation.

**District 4, Princeton, WV Field Office**

***\*Mine No. 6 (4609084), Harvest-Time Coal Inc., Dick J. Plaster***

Although identified in the February 2009 for PPOV consideration, this mine was not put in PPOV status at that time. Since then, Mine No. 6 changed on March 6, 2009. The mine is now Laurel Fork Mine, Consol Energy Inc. MSHA was notified of the change of ownership after the Coal Administrator received the initial potential POV screening list of mines from the Assessments Director. The POV program focuses on mine operators; thus a bona fide change in ownership results in the initiation of a new time period for consideration of violations.

The mine is in non-producing status; there are no miners working and there is no mining activity (pumping only). MSHA has had 10 inspection days (49.25 onsite inspection hours) at this mine since the ownership change. A spot inspection conducted on June 29, 2010 found no violations.

**District 5, Norton, VA Field Office**

***No. 2 (4407081), Regent Allied Carbon Energy, Inc., Ervin Stillner***

The June 2008 screening identified this mine as a potential repeat PPOV mine. The mine was previously placed in PPOV status during the December 2007 cycle and the mine achieved the S&S goal and significantly reduced its S&S rate. The screening uses the two year history but also includes the six months that the operator developed and implemented the action plan. Enforcement data from Jan 1, 2008 to June 9, 2008 indicated only 18% of violations were S&S.

The six month review cycle was too short to allow company's plan of action to be fully implemented and evaluated, thus it was not put into PPOV status again.

No. 2 Mine received 34 inspection events, including seven regular safety and health inspections, 23 spot inspections, two technical inspections, and one hazard complaint investigation. MSHA had 184 inspection days at this mine (919.75 onsite inspection hours) and there have been no fatalities at this mine since June 2008.

A spot inspection was conducted on June 30, 2010. As a result of this inspection, 11 104(a) citations were issued (two were S&S). No high negligence citations or orders were written.

**District 7, Barboursville, KY Field Office*****RB#10 (1518267), Manalapan Mining Company, Inc., Ben Bennett***

RB#10 was placed on PPOV in December 2007 and achieved the S&S goal during this cycle. When the February 2009 screening identified RB#10 for PPOV consideration, the mine was worked out, production had ceased, and equipment had been removed from the mine. The mine is in abandoned status.

**District 8, Vincennes, IN Field Office*****Hazleton Mine (1202324), White River Coal, Inc., Bronco Energy Fund, Inc.***

The screening in December 2007 identified Hazleton Mine for PPOV consideration. However, the mine ceased production on August 31, 2007; equipment was removed from the section, and the mine began sealing on December 17, 2007. The mine is currently in temporarily idled status.

**District 9, Aztec, NM Field Office*****McKinley Mine (2900096), Chevron Mining, Chevron Corporation***

The OIG is incorrect when it identified McKinley Mine as a mine that did not receive a PPOV notice letter. McKinley Mine received a PPOV notice letter on June 12, 2008. The PPOV notice was withdrawn on July 17, 2008, due to a decision by the Federal Mine Safety and Health Review Commission to reopen certain citations and that these affected citations would no longer be treated as final orders of the Commission for pattern purposes. The operator was advised that MSHA would not proceed further with the implementation of the pattern procedure under 30 C.F.R. Part 104 at the McKinley Mine and the operator was encouraged to continue to take the remedial measures implemented in response to the pattern notice. The mine has since been put in non-producing status.

***King 1 (0500266), GCC Energy LLC, GCC of America***

As a result of the February 2009 screening, King 1 Mine was issued a PPOV notice letter. The mine's underground workings were permanently sealed on February 20, 2009, and the operator sent a letter to MSHA dated March 9, 2009, that the mine would be abandoned. The mine remains in abandoned status.

**Metal/Nonmetal Mines****Northcentral District, Marquette MI Field Office*****Empire Mine (2001012), Empire Iron Mining Partnership, Inland Steel Industries-Cleveland Cliffs***

Empire Mine was identified for PPOV consideration in June 2008. MSHA did not provide a PPOV notice letter to the operator in the June 2008 cycle because the mine had taken proactive steps to reduce its S&S rate.

Empire Mine received 21 inspection events, including three regular safety and health inspections, two spot inspections, two technical inspections, and four hazard complaint investigations. MSHA has been on-site 365 inspection days at this mine (1821.25 on-site hours). There have been no fatalities at this mine since it was not put in PPOV status following the June 2008 screening.

A spot inspection of the Empire Mine was started on June 28, 2010. As a result of this inspection, 19 104(a) citations were issued (eight were S&S). One high negligence citation was written.

**Southeastern District, Lexington KY Field Office*****Kosmos Cement Co. (1504469), CEMEX INC., Cemex S A***

Kosmos Cement Co was identified for PPOV consideration in November 2007 and June 2008. In November 2007, Kosmos was placed in PPOV status and achieved the S&S goal for the PPOV cycle. MSHA did not provide a PPOV notice letter to the operator in the June 2008 cycle because a review of relevant citations issued during the more recent 12-month period revealed that they should not have been issued as S&S. A recalculation of the violation frequency showed that Kosmos Cement did not meet the PPOV S&S criteria.

Kosmos Cement plant received 15 inspection events, including four regular safety and health inspections, one technical inspection, one hazard complaint investigation, one fatal injury accident investigation, and one non-injury/non-fatal accident investigation. MSHA has had 84 inspection days at this mine (419.75 onsite hours) and one fatality has occurred at this mine since June 2008. Specifically, on August 23, 2009, a miner suffered what appeared to be a fatal heart attack while at work. The incident was investigated and considered to not be related to his work duties, and has not been charged as a mining fatality.

MSHA initiated a spot inspection of the Kosmos Cement plant on June 29, 2010. As a result of this inspection, 11 104(a) citations were issued (eight were S&S). One citation was classified as high negligence.

## Proposed Legislative Changes to Protect the Safety of All Workers and Prevent Future Disasters

Prepared by the offices of:

**Senator Tom Harkin**  
Chairman, Senate HELP Committee

**Representative George Miller**  
Chairman, House Committee on Education and Labor

**Senator Patty Murray**  
Chairwoman, Subcommittee on Employment and  
Workplace Safety

**Representative Lynn Woolsey**  
Chairwoman, Subcommittee on Workforce Protections

**Senator Jay Rockefeller\***

**Representative Nick Rahall**

*An alarming series of tragedies has befallen our nation's workplaces in recent months. In the wake of the recent disaster at the Upper Big Branch Mine, there was substantial public outcry about the mine's disturbing safety record, and the systemic barriers that prevented these recurring safety problems from being addressed. Similar concerns have been raised in other industries in the aftermath of workplace fatalities. Some of these deaths received national attention – like the explosion at the Tesoro refinery in Washington or the Kleen Energy facility in Connecticut – but the vast majority get little attention beyond affected family and friends.*

*This concept paper outlines legislative proposals that would address these serious concerns – increasing incentives for mine operators and other employers to comply with safety laws, empowering workers to speak up about safety concerns, and giving MSHA the tools it needs to put unsafe mines back on track. It is the hope of the authors that this paper can form the basis of productive discussions with Congressional colleagues and interested stakeholders, and can be the starting point for bipartisan legislation that will protect all our workers and prevent future disasters by improving compliance with mine and occupational safety and health laws.*

### Putting Mines with Deteriorating Safety Records Back on Track

- ***Change MSHA's "pattern of violations" process from a primarily punitive to a rehabilitative process, wherein mines with significantly degraded safety records are given remedial safety plans and must meet benchmarks demonstrating that they are making progress on safety issues.***

The "pattern of violations" system was intended to be the most important tool to address mines with recurring safety problems. Unfortunately, this tool cannot be effectively utilized under current law. In addition, the harshly punitive nature of the current system does not serve the goal of helping unsafe mines improve their performance and return to operations safely.

We propose that mines with a pattern of significant safety problems (withdrawal orders, flagrant violations, citations for "significant and substantial" violations, accidents and injuries, etc.) should be placed on "pattern of violation" status if their safety and compliance record falls below thresholds established by MSHA. These thresholds should be appropriate to the size and type of mine, and both the thresholds and the data that MSHA uses to evaluate mines should be made publicly

available on MSHA's website and updated regularly so that mines can track their status and take preventive measures to avoid being placed on pattern status.

When a mine meets the criteria and is placed on pattern status, miners must be withdrawn to protect their safety, and a remedial order should be issued by MSHA. This remedial order should outline steps that the mine must take to get its safety performance back on track, such as additional training for miners, additional safety personnel, or the creation of a health and safety management program. Miners must remain withdrawn until violations or unsafe conditions identified in the remedial order are remedied, and the operator has commenced or completed other safety actions as identified in the order. Once miners return to the mine, the mine should be in what is effectively a probationary period. The number of annual inspections should increase, and MSHA should periodically assess whether the mine is meeting prescribed safety benchmarks. Mines that meet these benchmarks for one year should be removed from pattern status. Mines that do not meet these benchmarks should face an increase in fines and penalties for safety violations, and potentially a renewed withdrawal order.

#### **Giving MSHA Appropriate Enforcement Tools**

- ***Give MSHA additional authority to order training.*** Even outside the pattern of violations context, there are also circumstances where additional training is the appropriate response to a safety concern. MSHA should have the authority to order such additional training in appropriate circumstances.
- ***Give MSHA authority to seek injunctions when there is a course of conduct that constitutes a continuing threat to the health and safety of miners.*** Currently, MSHA has limited authority to pursue injunctive relief in court when there are serial violations that present a risk to the health and safety of miners. MSHA should have the authority to pursue an injunction-stopping these bad practices or temporarily shutting down the mine when there is a course of conduct that constitutes a continuing hazard to the health and safety of miners.
- ***Clarify the definition of a "significant and substantial" violation.*** Currently there is no statutory definition of a significant and substantial violation. The law would benefit from additional clarity by defining a "significant and substantial violation" to include violations where there is "a reasonable possibility that such violation could result in injury, illness or death."
- ***Give MSHA expanded authority to subpoena documents and testimony.*** Currently, MSHA does not have the authority to subpoena documents or testimony from operators outside the context of a formal, public hearing. MSHA should have this authority in the context of investigations and inspections as well as public hearings.

#### **Ensuring that Irresponsible Operators are Held Accountable**

- ***Increase maximum criminal penalties.*** Currently, criminal violations of mine safety laws are a misdemeanor for a first offense. To provide a strong deterrent for such serious misconduct, the penalties for knowing violations of safety standards should be raised to the felony level, including providing felony penalties for miners, operators, and government officials who knowingly provide advance notice of an unannounced inspection.

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- ***Increase maximum civil penalties.*** Raising maximum civil penalties for “significant and substantial” violations of mine safety laws would also be beneficial to ensure that operators have a strong economic incentive to comply with the law.
- ***Ensure that operators pay penalties in a timely manner.*** Currently, MSHA is trying to collect about \$27 million in unpaid penalties for fully adjudicated violations. Operators who accrue penalties that are affirmed by the Commission, but never paid, effectively get away with violating the law. MSHA should have the authority to withdraw miners from a mine that is more than 180 days in arrears on fully-adjudicated penalties, if that mine is not participating in a payment plan.

**Protecting Workers Who Speak Out About Unsafe Conditions**

- ***Strengthen protections for workers who speak out about unsafe conditions.*** Workers who go into a mine every day are in the best position to find safety hazards. It is essential that miners have the strongest possible protections to ensure that they can raise safety concerns on the job without fear of retaliation. We propose to strengthen existing whistleblower protections, including requiring one hour annually of “miner’s rights training” to inform workers of the law’s protections, giving miners an express right to refuse unsafe work, expanding the time limit for complaining about retaliation from 60 to 180 days, and authorizing punitive damages and criminal penalties for knowing retaliation against workers who raise safety concerns.
- ***Ensure that miners don’t lose pay for safety-related closures.*** Fear of losing a paycheck can also deter miners from raising safety issues. Miners should receive full pay when they are idled by a MSHA-initiated safety-related closure and cannot be re-assigned to work in an open portion of the mine.
- ***Ensure that miners can speak freely during investigations.*** The ability of miners to communicate openly with MSHA during investigations is key to uncovering and correcting safety problems. MSHA should have the ability to interview mine employees and other individuals with relevant information privately if the individual requests or consents to a private interview.

**Increasing Accountability**

- ***Provide for an independent investigation of the most serious accidents.*** Everyone benefits from having the best possible information about serious accidents, not only to learn about what went wrong, but also to learn whether government officials acted properly before the accident, in responding to the crisis, and in their subsequent investigation. We support requiring an independent investigation by a NIOSH-appointed team of independent experts for any accident involving 3 or more deaths.
- ***Ensure that all safety personnel are well-qualified.*** A key component of mine safety is ensuring that those responsible for the day-to-day safety decisions meet the highest standards of qualification. MSHA should institute a process to certify the qualifications of foremen, superintendents, and other high-level safety officials if there is not an adequate state-based certification process in place.

- **Ensure that inspections are comprehensive and well-targeted.** Inspections by MSHA are the cornerstone of our mine safety system, and MSHA's limited inspection resources should be well-distributed over all shifts and days of the week when mines are operating to protect all miners.
- **Require pre-shift reviews of mine conditions, and communication to ensure that appropriate safety information is transmitted.** Responsible practices and good communication is the first line of defense in keeping our mines safe. Operators should be required to institute a pre-shift review of mine conditions, and to implement a communication program to ensure that each miner is made aware of the current conditions of the mine at the start of his/her shift. This would be accomplished through required verbal communication between incoming and outgoing foreman, assistant foreman, and other officials responsible for safety conditions on each shift. These verbal communications should also be recorded in writing in a log.

#### **Reducing Safety Risks**

- **Reduce the Risk of Coal Dust Explosions.** It is essential to take all possible steps to reduce known risks to miner's safety. To reduce the risk of dangerous explosions, we must require greater amounts of rock dusting, mandate new monitoring technology to improve rock dust measurements, and require the study and subsequent use of continuous atmospheric monitoring systems.

#### **Increasing Safety in Other Workplaces**

- **Provide similar protections in other workplaces covered under the Occupational Safety and Health Act.** Unfortunately, mines are not our nation's only dangerous workplaces. All workers deserve to come home safe after work each day. Accordingly, we also support improving protections for workers in other workplaces by strengthening whistleblower protections, increasing criminal penalties where workers are killed due to a safety violation, updating civil penalties which have not been increased since 1990, preventing litigation from delaying the correction of hazards that could lead to serious injury or death, and providing greater rights for victims of accidents and their family members to participate in proceedings under the OSHAct.

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\* The office of the late Senator Robert C. Byrd also participated in the preparation of this paper. The authors gratefully acknowledge these contributions.

## Appendix G

## Technical Details of the Logic Errors, Criteria Misstatements, and Anomaly in the POV Computer Application

### Queries

Our review of the queries used in MSHA's POV computer application to extract and summarize data from MSHA's Data Warehouse identified the following logic errors:

- 4 sub-queries in the *Basic\_Query\_9-15-2009.qry* file and 1 query in the *Repeat S&S Finals by CFR 9-16-2009.qry* file use the following function statement.

```
(INQprod.tera_violations_vwj.last_action_code IN
('1stDemandReady', '2ndDemandPrinted', 'ApprovedForTreasury',
'Chapter 11', 'Chapter 7', 'Chapter 7 Bankruptcy', 'Citation Vacated',
'Delinquent', 'Final Order Date', 'JusticeSettlement', 'On Hold',
'Paid', 'ProposeUncollectable', 'Recalled From Treasury',
'RecommendTreasury', 'Treasury', 'Uncollectable'))
```

The purpose of this function is to restrict the data extraction to only final citations/orders.

1. The value "Citation Vacated" was incorrectly included in this function statement. Result = possible over count of relevant citations/orders.
- 5 sub-queries in the *Basic\_Query\_9-15-2009.qry* file are missing one of the following function statements.

```
(INQprod.tera_violations_vwj.occurrence_date >=
INQMSIS.mine_tbl.curr_ownr_beg_dt)
```

or

```
(INQprod.enf_time_tbl.date_worked >=
INQMSIS.mine_tbl.curr_ownr_beg_dt)
```

The purpose of these functions is to restrict the data extraction to transactions that relate to only the current mine owner.

2. The "current owner only" dates were incorrectly excluded from this function statement. Result = possible over count of citations/orders.

### Spreadsheet – Filters

Our review of the Excel spreadsheet filters used to identify mines that meet all of MSHA's POV criteria disclosed the following issues:

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- Column BZ is used for POV criteria filter #1 in the Coal and Metal/Nonmetal POV analyses for the 24 months ending September 30, 2007, March 31, 2008, December 31, 2008, and August 31, 2009. The Excel formula used to generate the values in this column is

=IF(BN{current row number}>BM{current row number},"Yes","No")

- The formula uses the Boolean operator "greater than" (>). However, to correctly represent the screening criteria for filter #1 which required at least 10 S&S citations/orders issued for surface and facility mines or at least 20 S&S citations for underground mines it should have used the Boolean operator "greater than or equal to" (>=).

According to MSHA, the intent was to require more than 10 S&S citations/orders issued for surface and facility mines or more than 20 S&S citations issued for underground mines.

Result = based on MSHA's explanation of its intent, the formula used is correct. However, the criteria had been continually misstated since it was first published in June 2007.

- Column CF is used for POV criteria filter #7 in the MNM POV analyses for the 24 months ending March 31, 2008, December 31, 2008, and August 31, 2009. The Excel formula used to generate the values in this column is

=AL{current row number}+AM{current row number}

- The formula references and adds the wrong columns (AL and AM). The columns referenced contain data on the number of 104(d) final orders for the first 12 months (AL) and the second 12 months (AM) of the review period. However, since the screening criteria for filter #7 requires at least one S&S 104(d) final order during the review period, the formula should reference Column BE (Final S&S 104(d) citations and orders for the 24 review period).

Result = inclusion of mines with a final 104(d) order that was not a S&S final 104(d) order.

Note: The formula used in Column CF in the spreadsheet used for the Coal POV analysis during these same time periods is correct.

- Column CG is used for POV criteria filter #8 in the Coal and Metal/Nonmetal POV analyses for the 24 months ending September 30, 2007, March 31, 2008, December 31, 2008, and August 31, 2009. The Excel formula used to generate the values in this column is

=IF(M{current row number}>BM{current row number},"Yes","No")

5. The formula uses the Boolean operator “greater than” (>). However, to correctly represent the screening criteria for filter #8 which required at least 10 S&S citations/orders that are final for surface and facility mines or at least 20 S&S citations/orders that are final for underground mines it should have used the Boolean operator “greater than or equal to” (>=).

According to MSHA, the intent was to require more than 10 S&S citations/orders that were final for surface and facility mines or more than 20 S&S citations that were final for underground mines

Result = based on MSHA’s explanation of its intent, the formula used is correct. However, the criteria had been continually misstated since it was first published in June 2007.

- Column CH is used for POV criteria filter #10 in the Coal and Metal/Nonmetal POV analyses for the 24 months ending March 31, 2008, December 31, 2008, and August 31, 2009. The Excel formula used to generate the values in this column is

=VLOOKUP(C{current row number}, 'Repeat Violations by Mine'!\$A\$2:\$C\$754, 3, FALSE)

6. The formula incorrectly defines the length of the table to be referenced as ending in row 754. The actual length of the referenced table will change each time the POV analysis is executed. If the actual table length is less than or equal to 754 rows, no problem occurs. However, if the actual table length should exceed 754 rows, this formula will ignore potentially relevant data.

Result = a mine with at least 5 final S&S citations/orders could incorrectly fail to meet this screening criteria.

Note: It appears the use of row 754 as a table length is a carry-over from the prior POV analysis performed for the 24 months ended September 30, 2007 where 754 was the correct length of the table.

### **Results of Comparing Original versus Corrected POV Analysis**

MSHA’s Data Warehouse is updated (i.e., changed) every night<sup>14</sup> with new information. In order to compare results of different versions of MSHA’s POV computer application, we required a static data set. At our request, MSHA provided us with a copy of its Data Warehouse as of May 10, 2010. By executing the original POV computer application and the OIG’s corrected version of the computer application against this static data set,

<sup>14</sup> Prior to August 2008, MSHA updated its Data Warehouse on a weekly basis.

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we could be sure that differences in the results were caused by the changes in the computer application, not changes in the underlying data.

- Executing MSHA's uncorrected POV analysis against the May 10, 2010 data warehouse identified 17 mines for potential POV evaluation – 12 coal mines and 5 metal/nonmetal mines.
- Executing the OIG's corrected version of the POV analysis against the May 10, 2010 data warehouse identified 21 mines for potential POV evaluation – 16 coal mines and 5 metal/nonmetal mines.
- In comparing specific mines identified, for Metal/Nonmetal, the MSHA and OIG results matched exactly (same five mines). However, for Coal, the MSHA analysis identified one mine that was not identified in the OIG analysis and the OIG analysis identified five mines that were not in the MSHA analysis.

<b>POV Screening Results May 10, 2010 Data Warehouse</b>			
<b>Uncorrected POV Computer Application</b>		<b>OIG Corrected POV Computer Application</b>	
<b>Mine ID</b>		<b>Mine ID</b>	
1.	Coal mine A	1.	Coal mine A
2.	Coal mine B	2.	Coal mine B
3.	Coal mine C	3.	Coal mine C
4.	Coal mine D	4.	Coal mine D
5.	Coal mine E	5.	Coal mine E
6.	Coal mine F	6.	Coal mine F
7.	Coal mine G	7.	Coal mine G
8.	Coal mine H	8.	Coal mine H
9.	Coal mine I	9.	Coal mine I
10.	Coal mine J		
11.	Coal mine K	10.	Coal mine K
12.	Coal mine L	11.	Coal mine L
		12.	Coal mine M
		13.	Coal mine N
		14.	Coal mine O
		15.	Coal mine P
		16.	Coal mine Q
13.	Metal/Nonmetal mine AA	17.	Metal/Nonmetal mine AA
14.	Metal/Nonmetal mine BB	18.	Metal/Nonmetal mine BB
15.	Metal/Nonmetal mine CC	19.	Metal/Nonmetal mine CC
16.	Metal/Nonmetal mine DD	20.	Metal/Nonmetal mine DD
17.	Metal/Nonmetal mine EE	21.	Metal/Nonmetal mine EE

## Appendix H

## 70 Unique POV Data Elements Tested and Related Descriptions

Attribute	Field Description (Descriptions taken from MSHA Data Warehouse Data Dictionary)
<b>Mine_tbl</b>	
* Coal (C) or Metal (M) Mine	Qualify with a 'C' if only coal mines are desired. Qualify with an 'M' if only Metal/nonmetal mines are desired.
* Primary Canvass Code	Canvass code associated with the primary commodity code. In the MSIS system, canvass code is known as an industry group code. Values are 1, 2, 5, 6, 7, 8. For Coal breakdown: Canvass cd 1 – Coal (Anthracite) SIC 12310. Canvass cd 2 – Coal (Bituminous) SIC 122200. Canvass cd 2 – Coal (Lignite) SIC 122100.
* Controller ID	Identification number assigned by MSHA Assessments for a Legal Entity acting as a controller of an operator. If this person is a controller of an operator, this is the controller ID assigned to this person.
Controller Name	Either the business name or a person's name for the legal entity.
Mine Name	Mine name as designated on the Legal Entity ID Form (LID) or Mine Information Form (MIF)
* Current Owner Begin Date	Start date of the operating period at the mine.
* Mine Status	Unique code abbreviation for each mine status entered on the MIF. For current mine status. See Mine Status table for mine history. Original codes were 1 character. MSIS values are Active, NonProdActive; Intermittent; Abandoned or AbandonedSealed; NewMine; TempIdle. Use Data Values to select status.
* Mine ID	Identification number assigned to the mine by MSHA
* Mine Status Desc	Values are Abandoned, Abandoned and Sealed, Active, Intermittent, New Mine, NonProducing and Temporarily Idled.
* Mine Type	From the Legal ID (LID) form. The original codes were one character. The MSIS types are Facility, Surface or Underground.
* Operator ID	ID of the operator from the LID

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* Operator Name	The latest operator name as updated by a LID or MIF. If the last action is a LID, it will be updated if Assessments updates the name when it is approved. A new MIF will subsequently overwrite the mines operator name.
Office Code	MSHA code that identifies the office to which the mine is assigned. This is entered on the Mine Information Form (MIF).
* Primary Canvass Code Desc	Unique code abbreviation for the primary industry group code for a mine.
Office_tbl	
District Name	District name.
Office Code	MSHA code that identifies each office.
Office Name	The name of the office.
ACC_INJ_TBL	
* Accident Date	Date the accident/injury/illness occurred.
Schedule Charge (Days)	Charge in days lost for any permanent injury/illness. Example: 6000 days for a death, 2400 days for the loss of a foot at the ankle.
Contractor ID	Identification number assigned by MSHA for contractors working at a mine. It is the contractor ID of the contractor or contractor employee involved in the accident/injury/illness.
Days Lost	Actual days lost from work.
* Degree of Injury Code	Code identifying the degree of injury/illness to the individual: (00) Accident only; (01) Fatality; (02) Perm total or perm partial disability; (03) Days away from work only; (04) Days away from work and restricted activity; (05) Days restricted activity only; (06) Injuries that do not result in death, or days away from work, or days of restricted work activity; (07) Occupational illnesses; (08) Fatal and non-fatal injuries due to the natural causes; (09) Fatal and non-fatal injuries to non-employees; (10) All other cases, including first aid. View "Degree of Injury Codes" for possible updates.
* Mine ID	Identification number assigned to the operation by MSHA. It is the mine ID of the mine where the accident/injury/illness occurred.
ENF_TIME_TBL	
* Activity Code	Activity Code for these hours reported. If an Event is also specified, this Activity Code must match that of the Event. Item #6 on the Weekly Time and Activity Data form.

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AR No.	AR number of the employee for whom the time data was submitted. Metal AR and ROE numbers will be 4 characters and Coal will be 5 characters.
* Date Worked	The date the hours were worked for this activity.
* Event No.	Event number related to the inspection and activity.
* Mine ID	Mine ID where inspection took place.
* Coal (C) or Metal (M) Mine	Qualify with a 'C' if only coal information is desired. Qualify with an 'M' if only Metal/nonmetal mines is desired. Leave blank to retrieve data for both types of mines.
* Inspection Time	Total of fields 14a thru 14e on Weekly Time and Activity Data form. Total of On-Site Inspection Time (MNM), MMU Pit Time (Coal), Outby (Coal UG Mines), Surface Area Time (Coal) and C/O Writing On Site (MNM, Coal) Reviews (Coal),
* Task Code	A task code for personnel who perform a variety of tasks that may not be directly related to their title or to identify specialist activity associated with an event. Item #11 on the Weekly Time and Activity Data form.
<b>Insp_tbl</b>	
* Insp Acty Code	Code used to identify the type of enforcement activity. See Common Table "Insp Activities" for more detail. Coal activity codes are characters and Metal activity codes are numbers.
* Beginning Date	Start date of the inspection.
* Ending Date	Inspection close out date.
* Event No.	Unique number identifying an inspection (event).
* Mine ID	Identification number assigned to the operation by MSHA.
<b>MINE_EMPROD _ TBL</b>	
Employees	Average number of employees reported by the operator for the applicable quarter, subunit and year beginning with 1990.
Hours Worked	Total employee hours reported by the operator during the quarter for this subunit, year and quarter.
Production Quarter	The single-digit quarter for which the employment and production data is reported.
*Production Year	The 4-digit year of the employment/production data.
* Mine ID	Identification number assigned to the operation by MSHA.

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Tera _violations _vwj	
* CFR Standard Code	The 30 CFR Standard that the operator files to modify.
* Citation No.	Preassigned citation/order/safeguard number of the initial action. Citation number is unique for non-history record
* Citation Type Code	Specifies the type of Citation: Citation, Order. Use Data Values to select code.
* Coal (C) or Metal (M)	One character indicator. (C) Coal or (M) Metal.
* Final Order Date	Date that this Assessment becomes a Final Order. This date is set when the CRR date (Certified Return Receipt date) is set. Note that this can be a projected future date that is set as soon as the CRR is entered.
* Last Action Code	Last action taken against this violation. Listed in common table Last Action Codes. Use Data Values to select code.
* Mine ID	Mine ID at which the violation is issued.
* Occurrence Date	Date of the occurrence.
* Primary Action Code	Primary Section of Act which gives the MSHA Inspector the authority to take the action specified by this Issuance. More than one type of action may be cited. Use Data Values to select code.
* Sig and Sub Indicator	An indicator as to whether or not the gravity is determined by the inspector to be S&S.
Violator Name	The name of the Operator or Contractor at the time of the Assessment.
* Violator Type Code	Specifies the type of Violator, either Operator, Contractor, Agent or Miner (listed in common table Violator Type Codes). Use data Values to select code.
Viol _tbl	
* AR No.	Authorized Representative (AR) number of the MSHA representative who issued the citation or order. Metal AR and ROE numbers will be 4 characters and coal numbers will be 5 characters. However, if an employee transfers from Coal to Metal, they will continue to use the 5-character AR number.
AR Office Code	Organization code for the issuing AR (Coal only).
* Type of Issuance	Type of issuance: Citation, Order, Safeguard or Notice.

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*Contractor ID	Code identifying the contractor to whom the citation or order was issued.
* Event No.	Event number of the inspection during which the citation/order was issued.
* Injury /Illness	Value assigned to a violation for gravity of injury. Measure of seriousness of violation being cited as measured by severity of the injury or illness to persons if accident were to occur due to the conditions of the violation: Fatal, LostDays, NoLostDays or Permanent.
* Date Issued	Date the citation or order was issued by the MSHA inspector.
* Time Issued	Time (24 hour) the citation or order was issued by the MSHA inspector.
* Likelihood	Likelihood of an injury occurring due to the cited condition: Highly, NoLikelihood, Occurred, Reasonably or Unlikely.
* Negligence	Codes representing the degree of negligence that the Inspector assigned to the Violator due to the Violation: HighNegligence, LowNegligence, ModNegligence, NoNegligence or Reckless.
* Number Affected	Number of persons affected by the cited condition.
* 30 CFR	Part/section of Title 30 CFR violated.
* Sig and Sub Designation	S&S designation (Y or N).
* Type Action 1	Section of Act which is authority for the action taken.
* Type of Termination	Code identifying the type of termination: Issued, ReplacedByOrder, Terminated or Vacated.
* Violation No.	Citation/order number.
* Violator Type	Agent, Contractor, Miner, or Operator

\* = Key Data Element for POV analysis.

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### Integrated MSIS Data Flow Diagram



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## Appendix J

## Affects on the Results of MSHA's POV Model from Criteria Changes

Description of Scenario		# of Potential POV Mines Compared to Baseline			
		Total Mines	Same Mines	Added Mines	Dropped Mines
	Baseline – MSHA's Criteria	21			
1	Eliminate ONLY Criteria #1	21	21	0	0
2	Eliminate ONLY Criteria #2	23	21	2	0
3	Eliminate ONLY Criteria #3	28	21	7	0
3a	Reduce Criteria #3 to 50%	27	21	6	0
4	Eliminate ONLY Criteria #4	28	21	7	0
4a	Reduce Criteria #4 to 110%	23	21	2	0
4b	Increase Criteria #4 to 140%	15	15	0	6
5	Eliminate ONLY Criteria #5	23	21	2	0
6	Eliminate ONLY Criteria #6	22	21	1	0
6a	Reduce Criteria #6 to 1	23	21	2	0
6b	Increase Criteria #6 to 3	19	19	0	2
6c	Reduce Criteria #6 analysis period to 12 mos.	17	17	0	4
6d	Reduce Criteria #6 analysis period to 12 mos. and reduce filter criteria to 1.	18	18	0	3
7	Eliminate ONLY Criteria #7	30	21	9	0
7a	Reduce Criteria #7 analysis period to 12 mos.	16	16	0	5
8	Eliminate ONLY Criteria #8	23	21	2	0
9	Eliminate ONLY Criteria #9	25	21	4	0
9a	Reduce Criteria #9 multiplier to 3	20	20	0	1
9b	Reduce Criteria #9 review period to 12 mos. in the raw weighted score calculation	22	20	2	1
9c	Reduce Criteria #9 ranges for multiplier to (>1, =<1.5) (>1.5, =<2) (>2, =<2.5)	22	21	1	0
9d	Reduce Criteria #9 multiplier to 3, analysis period to 12 mos. and multiplier ranges as in 9c.	22	20	2	1
10	Eliminate the "Active" status requirement	25	21	4	0
11	Reduce review period to 12 mos.	29	9	20	12
12	Use only "Issued" orders/citations in all criteria	91	19	72	2

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**Appendix K****Acronyms and Abbreviations**


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ANPRM	Advanced Notice of Proposed Rulemaking
CDEM	Coal Dust Explosibility Meter
CFR	Code of Federal Regulations
CMS&H	Coal Mine Safety and Health
Coal	Office of Coal Mine Safety and Health
CY	Calendar Year
Commission	Federal Mine Safety and Health Review Commission
IR	Injury Rate
ISR	Injury Severity Rate
Mine Act	Federal Mine Safety and Health Act of 1977
Metal/Nonmetal	Office of Metal/Nonmetal Safety and Health
MSHA	Mine Safety and Health Administration
MSIS	MSHA Standardized Information System
NADL	National Air and Dust Laboratory
NIOSH	National Institute for Occupational Safety and Health
OIG	Office of Inspector General
OSRV	Office of Standards, Regulations, and Variances
POV	Pattern of Violations
POV model	Pattern of Violations Screening Criteria and Scoring Model
S&S	Significant and Substantial
SOL	Office of the Solicitor
UBB	Upper Big Branch Mine-South
VPIH	Violations per Inspector hour

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## Appendix L

## MSHA Response to Draft Report

U.S. Department of Labor

Mine Safety and Health Administration  
1100 Wilson Boulevard  
Arlington, Virginia 22209-3839

SEP 27 2010

## MEMORANDUM FOR ELLIOT P. LEWIS

Assistant Inspector General of Audit

FROM:

JOSEPH A. MAIN *Joseph A. Main*  
Assistant Secretary of Labor for  
Mine Safety and Health

SUBJECT:

Response to OIG Draft Audit Report No. Report No. 05-10-005-06-001, *"In 32 years MSHA has never Successfully Exercised its Pattern of Violation Authority"*

Thank you for the opportunity to review your draft audit report. The Mine Safety and Health Administration (MSHA) will use the audit results to help the Agency improve its pattern of violations (POV) enforcement authority—both the regulations and the administrative implementation process. As you know, we agree that the POV and potential pattern of violations (PPOV) process discussed in your report was flawed and needs to be fixed. The fact that no mine has ever been subject to the full provisions of the POV statute that has been in the Mine Safety and Health Act for over 32 years is a testament to that. I have given high priority to this issue, not only in my Congressional testimony, but also by placing the POV regulations on MSHA's regulatory agenda for revision and undertaking a revision of the POV criteria and implementation before the next mandated POV screening. We are fully committed to correcting the problems in this process. We welcome your audit recommendations which will help us improve the process already underway at MSHA. Our efforts are focused on ensuring that future PPOV and POV determinations are used as an effective part of MSHA's enforcement strategy in a manner that advances the Congressional intent that operators find and fix the root causes of violations before they become a hazard to miners.

As previously announced, MSHA will implement new procedures and criteria for the next round of PPOV/POV decisions under the existing regulations. We also intend to propose new POV regulations in order to, among other things, simplify the criteria for placing mines on a POV notice and make the POV system a more effective tool in identifying problem mines and changing the behavior of the operators who run those mines. In addition, we will continue to provide assistance as Congress develops legislation to fix the POV system.

Although we welcome the independent analysis provided by the OIG, we do wish to correct several inaccuracies in your report. The draft report stated that *"MSHA's responsibility is to assure that mine operators protect all workers from mining hazards at all times..."* and that *"...MSHA's exclusion of certain mines from POV analysis ... potentially placed workers at risk."*

You can now file your MSHA forms online at [www.MSHA.gov](http://www.MSHA.gov). It's easy, it's fast, and it saves you money!

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Simply put, Congress gave mine operators the primary responsibility to prevent unsafe conditions and practices in mines. We are concerned that your articulation of MSHA's responsibilities obscures the proper placement of that critical legal and moral responsibility to keep miners safe. MSHA cannot be in every mine, every day, on every shift. That is why miners are safest when employers take responsibility for anticipating, recognizing, and eliminating or controlling hazards. Operators cannot simply wait to correct hazards until after MSHA cites them for violations of regulations. Operators' failure to recognize and eliminate or control hazards – whether MSHA cites them or not – is what puts miners at risk. A more accurate description of MSHA's responsibility is to enforce the law as effectively as possible by using all the enforcement tools at our disposal, including an improved POV system, in order to promote safe and healthful working conditions for our nation's miners.

Below are specific responses to your recommendations. We look forward to responding in more detail in our 60 day response to your final report. If you have any questions, please contact Brent Carpenter at (202) 693-9782.

**OIG Recommendation No 1:** *Evaluate the appropriateness of eliminating or modifying limitations in the current regulations, including the use of only final orders in determining a pattern of violations and the issuance of a warning notice prior to exercising POV authority.*

We agree with this recommendation. MSHA's concerns regarding its POV regulation pre-dated the Office of the Inspector General's (OIG's) review. Reforming the POV process was one of the first priorities established by Assistant Secretary for Mine Safety and Health, Joe Main, upon his confirmation. As the OIG stated in its report, in testimony before the U.S. House Committee on Education and Labor on February 23, 2010, Assistant Secretary Main made public his commitment to reforming the POV process:

We are...reviewing the current pattern of violation criteria contained in [regulations]...considering a review of the pattern of violation process to determine whether our current approach is the best one for providing timely protection for miners.

In addition to internal meetings to discuss improvements in the process within the current regulatory restrictions, MSHA took the first step forward in making good on that commitment in the Department of Labor's Spring Semi-Annual Regulatory Agenda, posted on April 26, 2010, in which MSHA announced its intention to issue a proposed rule by January 2011 to simplify the pattern criteria, improve the process, and improve consistency in the application of the POV notice. MSHA recognizes that the POV regulation has not been effective in stopping chronic violators and reducing the risk of recurring hazardous conditions. During the development of the proposed rule, MSHA will evaluate all issues pertaining to the POV regulation, including whether to continue the use of only final orders in determining POV status and the issuance of a warning notice prior to exercising POV authority.

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**OIG Recommendation No 2:** *Seek stakeholders' input (e.g., miners, miner representatives, mine operators, etc.) in the development of POV screening criteria, but assure that the process, including any rulemaking, is not stalled or improperly affected because of competing viewpoints.*

We concur with the intent of this recommendation and plan to request stakeholder input in future development of POV screening criteria. Consistent with the Federal Mine Safety and Health Act of 1977 and the Administrative Procedures Act, MSHA will seek stakeholder input by engaging in notice and comment rulemaking, including public hearings. MSHA is considering appropriate methods for obtaining stakeholder input in the development of POV screening criteria.

MSHA intends to incorporate the findings in this OIG report into the development of new screening criteria. Because a POV screening must be conducted now in order to comply with the existing regulations, MSHA will not have time to seek stakeholder input before the next POV screening. MSHA is committed to securing stakeholder input before the following screening.

**OIG Recommendation No 3:** *Assure that POV selection criteria are sufficiently transparent to allow stakeholders to reasonably determine an individual mine's status at any point in time.*

We agree with this recommendation and will work to ensure that the new POV selection criteria are sufficiently transparent. For example, we plan to develop a service accessible through MSHA's Web site that will allow mine operators and other stakeholders to monitor each mine's inspection and violation data against the POV screening criteria. The data will be updated frequently so that mine operators and others will have the ability to identify troubling trends, and mine operators will have the opportunity to take timely remedial action.

**OIG Recommendation No 4:** *Assure that POV decisions are based solely on the health and safety conditions at each mine.*

We concur, as stated in MSHA's response to your Alert Memo. Future decisions about POV enforcement actions will be based solely on what is best for the safety and health of the miners, within legal and regulatory constraints.

**OIG Recommendation No 5:** *Implement a standard process for documenting all factors – both quantitative and non-quantitative – used to make POV decisions.*

We agree with this recommendation. MSHA will implement procedures in order to document the factors used in making each POV determination. The new POV process will analyze both quantitative and non-quantitative factors. As stated in our Alert Memo response, this process will involve the creation of a screening system that will identify mines that chronically fail to implement proper safety and health controls.

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The mines that are screened into a pool for consideration will then be carefully examined in order to confirm the accuracy of the data used and to assure that their current conditions merit inclusion in this enhanced enforcement program.

**OIG Recommendation No 6:** *Establish guidance on the preparation, review, and monitoring of mine operators' POV corrective action plans.*

We agree with this recommendation. MSHA plans to establish and provide written guidance to the Agency's enforcement personnel and mine operators about what constitutes an appropriate corrective action program for POV purposes. In addition to monitoring the violation histories of each mine identified as exhibiting a potential pattern of violations under the existing regulation, MSHA will review the corrective action programs against established guidelines for these programs and monitor operators' progress in implementing the various components of each.

**OIG Recommendation No 7:** *Eliminate the requirement that mines be in an "active" status to be screened for a pattern of violations.*

MSHA agrees with this recommendation that all mines be considered in the initial screening process. Following the screening process, in determining which mines are actually placed on POV, however, we anticipate legitimate case-by-case situations where mine operators are not placed on a POV because of qualitative factors, possibly including a mine's nonproductive status. As stated in our Alert Memo response, it is critical that MSHA focus its POV enhanced inspection resources on those mine operators that have chronically failed to protect the safety and health of the miners and that continue to put miners at risk.

**OIG Recommendation No 8:** *Use system development life cycle techniques (analysis, design, test, implement, and maintain) to reduce the risk of errors in any POV related computer program.*

We agree with this recommendation. MSHA plans to use system development life cycle techniques to reduce the risk of errors in any POV-related computer application.

**OIG Recommendation No 9:** *Re-evaluate the performance standard for timely completion of laboratory tests on rock dust or any other samples that yield enforcement related data, including addressing workload fluctuations and resources needs.*

We agree that more timely testing results regarding the combustibility of coal mine dust in mines are needed to assess operator compliance with rock dusting standards. MSHA has already begun implementing improvements in this area that would also speed up the time to analyze the samples by adding new equipment and repairing an out-of-service robot that will be added to the existing robotic system.

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Plans are also underway to upgrade the Mount Hope Lab to accommodate new ovens and other necessary components that will be purchased in order to keep pace with the robotics system. These steps will enable MSHA to increase testing capacity while, at the same time, implementing short-term programmatic and administrative improvements. Further, MSHA plans to contract for temporary personnel to staff the expanded laboratory. We expect significant improvements will be made to the sample turn-around times as a result of these actions.

Additionally, MSHA is encouraging actions through support of NIOSH research that will lead to use of Explosibility Meters (CEM) by mine operators. These devices would provide immediate, on-site results on combustible content to help ensure that coal dust is kept below explosive levels.

**OIG Recommendation No 10:** *Examine its current process and metrics for monitoring the improvement of potential POV mines to increase the likelihood that improvements are not temporary.*

MSHA agrees with this recommendation. MSHA is considering both administrative and regulatory approaches to respond to this recommendation most effectively in order to assure that mines placed in PPOV or POV status have a sustained and productive focus on hazard control and elimination.

In summary, we appreciate the careful and comprehensive work done by the OIG in reviewing the PPOV and POV program. The program, and the miners the program is intended to protect, will be improved by the insights and recommendations the OIG has provided and by MSHA's response.

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**Appendix M**

**Acknowledgements**

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*Key contributors to this report were Charles Allberry (Audit Director), Keith Galayda (IT Audit Director), Stephen Fowler, Michael Kostrzewa, Robert Swedberg, Jennifer Leung, Melvin Reid, Susan Rosenblum, Benjamin Brady, Samantha Cash-Johnson, Donald Evans, Richard Bryan, Aaron Talbert, Elizabeth Garcia, Norlean (Renee) Kelly, and Jennisa Paredes.*

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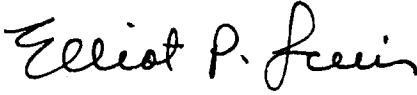
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FEB 16 2011

MEMORANDUM FOR: JOSEPH A. MAIN  
Assistant Secretary for  
Mine Safety and Health

FROM:   
ELLIOT P. LEWIS  
Assistant Inspector General  
for Audit

SUBJECT: Resolution Status of OIG Report No. 05-10-005-06-001,  
"In 32 Years MSHA Has Never Successfully Exercised Its  
Pattern of Violations Authority"

On November 29, 2010, you provided a memorandum detailing MSHA's proposed corrective actions in response to the subject audit report. As a result of the information provided in that memorandum and subsequent information provided by MSHA staff, we have CLOSED Recommendations 1, 2, 4, 5, 6, and 7 because MSHA has completed appropriate corrective actions. We have RESOLVED Recommendations 3, 8, 9, and 10 because MSHA has proposed, but not completed, corrective actions for each recommendation.

Our detailed analysis of each recommendation is summarized below:

**Recommendation 1 – Evaluate the appropriateness of eliminating or modifying limitations in the current regulations, including the use of only final orders in determining a pattern of violations and the issuance of a warning notice prior to exercising POV [Pattern of Violations] authority.**

Your response stated that MSHA had evaluated all issues related to the POV regulation, including whether to continue the use of only final orders in determining POV status and the issuance of a warning notice prior to exercising POV authority. As a result of this evaluation, MSHA has drafted a new proposed rule to make the POV system more effective. That proposed rule, published in the *Federal Register* on February 2, 2011, would eliminate (a) the use of only final orders in determining POV status and (b) the issuance of a warning notice to mine operators prior to exercising POV authority.

These completed actions address the audit recommendation. The OIG considers the recommendation **CLOSED**.

*Working for America's Workforce*

AB73-BKG-22

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**Recommendation 2 – Seek stakeholders' input (e.g., miners, miner representatives, mine operators, etc.) in the development of POV screening criteria, but assure that the process, including rulemaking, is not stalled or improperly affected because of competing viewpoints.**

Your response included a list of participants in a conference call that MSHA held with stakeholders in October 2010 to discuss the new POV screening criteria that MSHA issued on October 31, 2010. Your response stated that as a result of the input received, MSHA revised the method of calculating the severity measure criterion. It also stated that MSHA will continue to seek stakeholder input whenever you consider revising the POV criteria.

The actions described in your response address the audit recommendation. The OIG considers this recommendation **CLOSED**.

**Recommendation 3 – Assure that POV selection criteria are sufficiently transparent to allow stakeholders to reasonably determine an individual mine's status at any point in time.**

Your response stated that MSHA is developing (and will deploy by February 28, 2011) a web service that will allow mine operators and other stakeholders to monitor each mine's enforcement and injury data against the POV screening criteria. Subsequent information provided by your staff clarified that "other stakeholders" includes the general public.

This proposed action would address the audit recommendation. The OIG considers the recommendation **RESOLVED**. The recommendation will be closed after the OIG receives evidence that MSHA has successfully deployed the described web service.

**Recommendation 4 – Assure that POV decisions are based solely on the health and safety conditions at each mine.**

Your response stated that (a) a newly established POV Panel will determine whether mines identified through the POV screening process should be excluded from the potential POV notification or have their notification postponed, (b) MSHA's revised POV procedures clarify the types of mitigating circumstances that could potentially make a pattern of violations inappropriate, and (c) resource limitations will not be accepted as a reason to not issue a potential POV notification.

The new *Pattern of Violations Procedures Summary* (POV Procedures Summary) attached to your response does not identify MSHA resource limitations among the possible circumstance that could mitigate a mine operator's potential POV status.

These actions address the audit recommendation. The OIG considers this recommendation **CLOSED**.

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**Recommendation 5 – Implement a standard process for documenting all factors – quantitative and non-quantitative – used to make POV decisions.**

As stated in your response, the new POV Procedures Summary identifies requirements for documenting the POV process from the initial screening process through final POV determinations. The Standard Operating Procedures for the POV Panel that were attached to your response describe the file to be created and maintained by the Chairman for each mine under consideration for removal or postponement of a potential or final POV notice. These include any information provided by the District Manager, the dates and times of Panel meetings, and reports of Panel findings and recommendations.

These actions address the audit recommendation. The OIG considers this recommendation **CLOSED**.

**Recommendation 6 – Establish guidance on the preparation, review, and monitoring of mine operators' POV corrective action plans.**

As stated in your response, the new POV Procedures Summary contains specific guidance (Appendix B) on what constitutes an appropriate corrective action program. This guidance identifies 11 general subject areas that effective programs should address and states that programs should include (a) concrete, meaningful measures to reduce the mine's S&S violations, (b) measures tailored to mine's specific compliance problems, and (c) achievable benchmarks and milestones for implementation. Furthermore, the new POV procedures give District Managers the discretion to allow the mine operator additional time (not to exceed 90 days) to demonstrate that the correction action program effectively reduced S&S violations at the mine. The procedures specifically state that MSHA will monitor the operator's implementation of the corrective action program against the program's benchmarks. Failure to meet the program's benchmarks will decrease the time available to meet improvement goals under the POV procedures.

In response to subsequent OIG questions about the new corrective action program guidance, your staff stated that (a) MSHA expects mine operators to provide a written document in support of the corrective action program and (b) District Managers have the authority to determine what constitutes an appropriate program when determining if a mine operator receives additional time to reduce S&S violations.

These actions address the audit recommendation. The OIG considers this recommendation **CLOSED**.

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**Recommendation 7 – Eliminate the requirement that mines be in an “active” status to be screened for a pattern of violations.**

Your response stated that the new POV screening criteria eliminated the requirement that mines be in an “active” status to be screened for a pattern of violations and that the most recent screening included all mines under MSHA’s jurisdiction that (a) reported employment or production, (b) were inspected, or (c) had violations that became final orders regardless of the mines’ operating status.

The new POV Procedures Summary states that, at least once a year, MSHA “...will review the violation and injury history of each mine under MSHA’s jurisdiction to identify those that are exhibiting a potential Pattern of Violations [underscoring added for emphasis].”

These actions address the audit recommendation. The OIG considers this recommendation **CLOSED**.

**Recommendation 8 – Use system development life cycle techniques (analysis, design, test, implement, maintain) to reduce the risk of errors in any POV-related computer application.**

Your response stated that under the new POV procedures, the original queries (and any subsequent changes) developed by MSHA’s Office of Assessments to collect and analyze the POV screening data are independently analyzed and verified by MSHA’s Directorate of Program Evaluation and Information Resources (PEIR). In addition, a copy of all technical documentation will be maintained in PEIR’s version control tracking system.

Subsequent to your response, officials from MSHA’s Information Technology Center stated that PEIR had initiated the process of developing a POV computer application on the Mine Safety Information System (MSIS) to replace the existing application which consists of BI queries and electronic spreadsheets. PEIR is following a System Development Life Cycle approach (analysis of the POV screening data, development of the application, system integration testing, and user acceptance testing) to ensure that the resulting computer application runs as desired by all parties involved. PEIR estimates that the new application will be implemented by August 11, 2011. Subsequent to its implementation, PEIR will control all changes to the POV computer application through its Change Control Board (CCB) which involves representatives from the Office of Assessments, PEIR (business analysts, developers, testers), Metal & Non-Metal and Coal (POV decision-makers) as well as the Educational Policy & Development.

The proposed corrective actions would address the recommendation. The OIG considers the recommendation **RESOLVED**. The recommendation will be closed after the OIG receives evidence that (a) the POV application resides on the Mine Safety Information System, (b) the program and results cannot be modified by the operator, and (c) modifications are being handled through the MSIS change control process.

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**Recommendation 9 – Re-evaluate the performance standard for timely completion of laboratory tests on rock dust or any other samples that yield enforcement related data, including addressing workload fluctuations and resource needs.**

Your response included a schedule of eight tasks aimed at upgrading the current laboratory facility used to process rock dust samples (Mt. Hope, WV). The last of these tasks – re-evaluate the performance standard for timeliness – is scheduled for completion in July 2011.

Subsequent to your response, your staff provided a copy of Standard Operating Procedure (SOP) P-74 (issued October 13, 1998 and last reviewed in May 2010) for MSHA's Pittsburgh Safety and Health Technology Center. This SOP establishes specific turnaround times for completing and reporting the results of various analytical procedures. For example, the goal for completing analysis of coal respirable dust samples is 2 working days and the goal for completing analysis of coal respirable silica is 3 working days. The SOP further states that if stated turnaround goals are not attained, the supervisor or Quality Manager should be notified to assess and correct factors delaying results. Your staff also provided various other documents that establish time frames for completing analysis of gas samples based on the type of container used to collect the sample. For example, analysis of gas samples collected in vacutainers is to be completed within 1 week of the sample collection.

These proposed actions would address the audit recommendation. The OIG considers the recommendation **RESOLVED**. The recommendation will be closed after the OIG receives (a) evidence that each of the eight planned tasks has been completed and (b) a revised performance standard and supporting rationale for testing rock dust samples.

**Recommendation 10 – Examine the current process and metrics for monitoring the improvement of potential POV mines to increase the likelihood that improvements are not temporary.**

Your response stated that it is MSHA's intent that mine operators not abandon corrective action programs after their short-term goals are met and that corrective action programs should establish long-term goals for reducing violations beyond those established by MSHA under POV enforcement measures. These expectations are contained in the new POV Procedures Summary (page 10 of 12).

Subsequent to your response, your staff explained that as a result of examining the current process and metrics for monitoring the improvement of potential POV mines, MSHA's new POV procedures require mines identified as having a potential pattern of violations to meet more stringent improvement goals to avoid POV sanctions. In addition, MSHA will address related improvements in the potential POV process as part of its new proposed rule.

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That proposed rule, published in the *Federal Register* on February 2, 2011, would eliminate the issuance of a warning notice to mine operators (i.e., a "potential" POV designation) prior to exercising POV authority. This would also effectively eliminate the use of any improvement metric to avoid a POV designation.

The actions would address the audit recommendation. The OIG considers the recommendation **RESOLVED**. The recommendation will be closed after MSHA provides the OIG (a) a copy of the revised final rule which includes elimination of the potential POV status and (b) evidence of the final rule's publication in the *Federal Register*.

# Estimating the value of safety with labour market data: are the results trustworthy?

Beat Hintermann<sup>a</sup>, Anna Alberini<sup>a,\*</sup> and Anil Markandya<sup>b</sup>

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We use a panel dataset of UK workers, combined with risk data at the four-digit industry level, to look for evidence of compensating wage differentials for workplace risk. We discuss various econometric problems associated with the hedonic wage approach, namely the instability of the estimates to specification changes, unobserved heterogeneity and endogeneity. We find evidence of significant compensating wage differentials and Values of a Statistical Life (VSL) figures only under the most restrictive assumptions, i.e. when we assume that there is no unobserved heterogeneity and that all regressors are exogenous. However, the VSL values are large and vary dramatically with the inclusion or exclusion of industry and/or occupation dummies, as well as with the addition of nonfatal risk. When we specify models that allow for heterogeneity and endogeneity of risk and of other regressors, we find no evidence of compensating wage differentials. We conclude that if compensating differentials for risk exists, econometric problems and the changing nature of labour markets prevent us from observing them. We also conclude that models and techniques for panel data that account for unobserved heterogeneity and endogeneity present a completely different picture about compensating wage differentials than that inferred by most wage-risk studies, which have generally used single cross-sections of data.

## 1. Introduction

Over the last two decades, a large body of research has documented the existence of substantial inter-industry wage differentials in the US (since Krueger and Summers, 1988) and several other countries (e.g. Palme and Wright, 1992; Lucifora, 1993; Vainiomäki and Laaksonen, 1995; Erdil and Yetkiner, 2001; Sakellariou, 2004; Hsu, 2005). Alternative explanations for this phenomenon include

the existence of efficiency wages, unobserved worker ability (Keane, 1993; Goux and Maurin, 1999; Bhalotra, 2006) and industry-specific skills (Neal, 1995; Weinberg, 2001; Tang and Tseng, 2004). Over roughly the same period, considerable attention has also been dedicated to estimating worker risk premiums. Viscusi (1993) surveys 24 hedonic wage studies conducted in the US between 1974 and 1991 that found a positive association between workplace fatal injury risks and wages, once other worker and job

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characteristics were controlled for, and Viscusi and Aldy (2003) report on over 60 studies conducted in the US and all over the world over about 30 years.

The rationale of compensating wage studies is that workers must be offered higher wages for them to accept jobs with a greater risk of dying on the job, *ceteris paribus*, and that employers are willing to do so to the extent that it is cheaper than installing safety equipment in the workplace. The demands of workers and the offerings of firms will meet at the tangency points between the workers' indifference curves and the firms' isoprofit curves in the risk-wage space. The hedonic wage relationship is the locus of these tangency points, and the slope of this locus is the willingness to pay for a marginal decrease in risk (or the willingness to accept for a marginal increase in risk).

The trade off between pay and risk implicit in a worker's occupational choice is summarized into the so-called Value of a Statistical Life (VSL). This is defined as the rate at which individuals are prepared to trade off income for reductions in the risk of death, and can be equivalently described as the total WTP by a group of  $N$  individuals experiencing a uniform reduction of  $1/N$  in their risk of dying. Based on their survey of the US literature, Viscusi and Aldy (2003) recommend VSL figures of \$5–9 million (2000 US dollars). Estimates of the VSL based on compensating wage studies are available for several European countries, including the UK, where they usually range between \$4 and \$11 million,<sup>1</sup> and Switzerland (6.5–9.5 million 2000 dollars; Baranzini and Ferro Luzzi, 2001).<sup>2</sup>

The concept of VSL is deemed as the appropriate construct for *ex ante* analyses of safety regulations and policies, when the identities of the people whose lives are saved by the policy are not known. The notion of VSL is reasonably well accepted in academic and policy circles, and the estimates of the VSL implicit in workers' occupational choices are considered credible enough for the US Environmental Protection Agency

to rely on them to estimate the (avoided) mortality benefits delivered by environmental policies that save lives. In its 2000 Guidelines for Economic Analyses, the EPA relied on 21 compensating wage studies, out of a total of 26 studies, to produce a VSL figure (\$6.1 million 2000 dollars). This figure was thus based on the evidence from labour markets, but was used in subsequent environmental policy analyses.<sup>3</sup>

Recent research, however, has questioned the credibility of many estimates of the VSL from labour markets. Leigh (1995), Arabsheibani and Marin (2000, 2001), Black and Kniesner (2003), and Black *et al.* (2003) suggest that the estimates of the VSL from compensating wage studies are econometrically very fragile, for reasons that include poorly measured workplace risk, collinearity of risk estimates with industry dummies used to account for inter-industry wage differentials, endogeneity (an individual's level of risk may be determined simultaneously with his job, and hence with the wage), omitted regressors and heterogeneous preferences for risk and income.

We study the severity of these problems and their effects on the VSL using a panel dataset of UK workers. To our knowledge, this is for the first time panel data are used to study the robustness (or lack thereof) of VSL estimates in the UK labour market context.<sup>4</sup> The panel nature of our data allows us to control for unobserved heterogeneity, even when the unobserved individual-specific effects are correlated with included regressors (as in the 'within' estimator, which is well suited to Fixed-Effects (FE) model), and to apply alternate instrumental-variable techniques (e.g. Hausman and Taylor, 1981) to address endogeneity of risk with wages.

We find that only under the most restrictive assumptions (i.e. when unobserved heterogeneity is ruled out and workplace risks is treated as exogenous, as in a classical regression model estimated by Ordinary Least Square (OLS)) there is evidence of compensating wages and is the VSL is

<sup>1</sup> In some cases, studies based on UK data have found the VSL to be much larger than the upper bound of this range. For example, Siebert and Wei (1994), Sandy and Elliott (1996), Arabsheibani and Marin (2000) and Sandy (2001) peg the VSL in the range between €4.3 million and €74.4 million (equal to \$4.0 million to \$68.5 million at the 2000 exchange rate). A meta-analysis by CSERGE (1999) generates a range of VSL figures between €2.9 million and €100 million, resulting in weighted average equal to €6.5 million (all 2000 €, the corresponding dollar amounts being \$2.7, \$92.1 and \$6.0 million).

<sup>2</sup> Using the 1995 Swiss Labor Force Survey (SLFS) and the 1994 Swiss Wage Structure Survey (SWSS), Baranzini and Ferro Luzzi peg the VSL implicit in the choices of Swiss workers in the range of CHF 10–15 million (Swiss Francs, equivalent to \$6.5–9.5 million 2000 US dollars). They find that the VSL depends on risk level, union coverage and age.

<sup>3</sup> Clearly, doing so assumes that individuals would apply the same marginal rate of substitution between income and risk in both the original and the new policy context. This reliance on labour market estimates of the VSL – which occurs when original estimates of the willingness to pay to reduce the risk of dying in a specified environment context are not available – is not uncontroversial. The use of VSL figures from compensating wage studies when computing the mortality benefits of environmental policies has been criticized on the grounds of the fact that it mirrors the preferences of healthy males whose average age is 40, rather than those of the primary beneficiaries of environmental policies – the elderly and those in compromised health. Adjustments to the VSL for remaining life years were subsequently proposed, and eventually repealed.

<sup>4</sup> See Kniesner *et al.* (2006) for use of longitudinal data for US workers.

statistically significant. These OLS-based VSL values are, however, sensitive to the inclusion in the model of nonfatal injury risks and variables such as industry and occupation dummies, which may be correlated with risks; they are also suspiciously large and well above the range of values usually considered acceptable (Viscusi and Aldy, 2003). Our preferred estimation approaches – which allow for unobserved heterogeneity, endogenous risks and other endogenous regressors, and exploit our longitudinal data – find no evidence of compensating wage differentials. These results raise serious doubts about the credibility of VSL figures based on labour market studies – which are generally based on cross-sections of data – and underscore the importance of interpreting and using existing VSL estimates with caution in policy analyses.

Despite these results, we note here that the notion of VSL is the theoretically correct metric to use when estimating the mortality benefits of environmental and safety policies, and that there are many other approaches for obtaining the VSL. For example, the value that people place on risk reductions can be inferred from purchases of safety devices (e.g. smoke detectors), from the extra price people pay for products that are safer than others (e.g. automobiles with side-impact airbags, homes in less polluted areas; Portney, 1981) or from the time spent on risk-reducing behaviours (such as fastening seat belts when driving, etc.; Ashenfelter and Greenstone, 2004; Blomquist, 2004). Contingent valuation and other stated-preference surveys are another widely used option to elicit people's willingness to trade off income for risk reduction (Jones-Lee *et al.*, 1985; Johannesson *et al.*, 1997; Alberini *et al.*, 2004; Tsuge *et al.*, 2005).

The remainder of the article is organized as follows. In Section II, we present the concept of VSL and illustrate how it is usually estimated using labour market data. In Section III, we discuss the main econometric limitations of the conventional approach. Section IV illustrates these limitations and explores possible remedies using UK worker data. Section V concludes.

## II. VSL Estimates from Compensating Wage Studies

The VSL is the marginal rate at which individuals are prepared to trade off income for risk reductions:

$$\text{VSL} = \frac{\partial \text{WTP}}{\partial R} \quad (1)$$

<sup>5</sup> In empirical work, the logarithmic transformation of the wage rate often replaces  $w$  as the dependent variable in the regression. The wage rate,  $w$ , and fatality risk,  $p$ , are usually measured on an annual basis.

where  $R$  is the risk of dying and WTP is the Willingness to Pay for a reduction in risk, i.e. the maximum amount that can be subtracted from an individual's income to keep his or her expected utility unchanged for specified levels of risk. It has been empirically estimated by looking at the time individuals spend engaging in risk-reducing activities (such as fastening seatbelts, Blomquist, 1979), at how much they pay for additional safety features in their vehicles (Atkinson and Halvorsen, 1990; Andersson, 2005) or for safer bicycle helmets (Jenkins *et al.*, 2001), and by directly asking people to report their WTP for a specified hypothetical risk reduction. The bulk of the literature on the VSL, however, comes from compensating wage studies (Viscusi, 1993; Miller, 2000; Viscusi and Aldy, 2003).

Figure 1 shows the hedonic wage curve, which is the locus of tangency between workers' indifference curves (EU) and the firms' isoprofit curves (OC) in the risk-wage space. In a typical compensating wage study, data are gathered on the wage rate, education, experience, occupation and other individual characteristics of workers and workplace characteristics. These data are then used to run a regression relating the wage rate to the risk of fatal and nonfatal injuries, while controlling for the education and experience of the worker, and other job and worker characteristics thought to influence wages. A frequently used specification of the wage regression is:

$$w_i = \beta_0 + x_i\beta_1 + p_i\beta_2 + q_i\beta_3 + \varepsilon_i \quad (2)$$

where  $w_i$  is the wage rate for worker  $i$  and,  $x$  is a vector of individual, workplace and occupational characteristics, such as experience, education, age, gender, marital status, union status of the worker, industry dummies, occupation dummies and location dummies.<sup>5</sup> The variable  $p$  measures the risk of dying on the job, while  $q$  is the risk of nonfatal injuries. The  $\beta$ s are the coefficients to be estimated, and the VSL can be inferred from  $\beta_2$ . For example, if  $w$  measures annual earnings and  $p$  annual fatal workplace risk in  $X$  per 100 000, then the VSL is calculated as  $(100\,000 \times \beta_2)$ .

Viscusi (1993) argues that  $q$  must be included in the compensating wage equation. Since  $p$  and  $q$  are generally highly correlated, failure to do so would result in biased estimates of the  $\beta_2$  coefficient, and hence of the VSL. Viscusi and Aldy (2003) examine some 60 wage-risk studies conducted all over the world, finding that many of them, however, do not

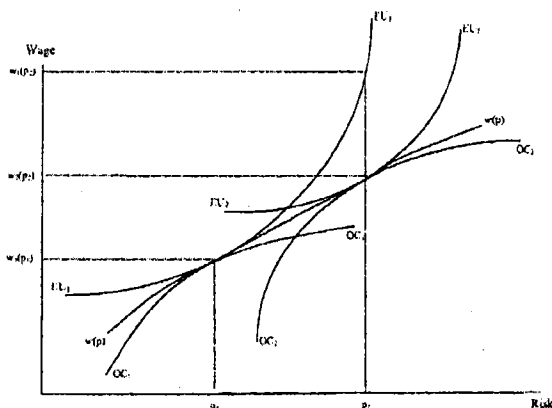


Fig. 1. Hedonic wage curve  
Source: Viscusi and Aldy (2003).

control for nonfatal risk.<sup>6</sup> Miller (2000) notes that nonfatal injury risks are highly correlated with fatality risks and that the common practice of including only the former in the hedonic regression to reduce collinearity means that the compensating wage differentials estimated in this fashion are absorbing both VSL and injury risk compensation. Omission of either risk variable is likely to inflate the coefficient on the other risk term (Meng and Smith, 1999).

Estimates of the compensating wage differentials (the *ex ante* compensation for risk) should also be influenced by workers' wage replacement rates in the event of an accident (i.e. workers' compensation, which is an *ex post* compensation) (Moore and Viscusi, 1990a). Meng and Smith (1999) show that the workers' compensation system reduces risk premium estimates for Ontario workers and conclude that the effects of insurance schemes on pay are substantial.

People's job choices should be influenced by *perceived* risks, not by actual risk levels, but the majority of wage-risk studies have constructed 'objective' measures of workplace risks and assigned those measures to individual workers. Until recently, workplace fatality and hazard rates were usually available only at the worker's industry or occupation level, but not for industry-occupation pairs (Viscusi, 2004), thus resulting in mismeasured risks. Attention has been usually restricted to male workers and to blue-collar professionals in an effort to limit measurement errors in the risk variable. It has also been argued – and empirical evidence has been found in support of these notions – that compensating wage differentials

should be different for older workers because of their shorter life expectancies (Viscusi and Aldy, 2007), that smokers select into riskier jobs and receive less compensation for such risks (Viscusi and Hersch, 2001) and that compensating wage differentials for risk may vary with race, reflecting different tastes for risk and income that are not correlated with wealth, different life expectancies and different market opportunities (Viscusi, 2004).

Finally, union status may influence compensating wage differentials for risks, because unions may be better informed about workplace fatality and injury risks and have more bargaining power than individual workers. Mrozek and Taylor (2002) conduct a meta-analysis of the wage-risk studies, and report that those studies where the sample consisted exclusively of union workers have indeed found systematically higher VSLs than the others. In contrast to the US, where most hedonic wage studies report higher VSL for union workers, empirical studies of the UK labour market published in the 1980s and early 1990s detect lower compensating wage differentials for union workers than for nonunion workers.<sup>7</sup> Siebert and Wei (1994) attribute this result to the failure to control for endogeneity of risks and union status, both of which are likely to be correlated with unobserved ability. They argue that workers with greater ability demand greater compensation for risk. Since these workers receive higher earnings and choose lower risk jobs, OLS estimates of compensating wage differentials will be downward-biased. At the same time, firms are under pressure to recognize and reward ability so as to offset higher union pay, with the result that union workers have more unmeasured ability than nonunion workers. To account for these factors, they estimate switching wage regressions for union and nonunion workers, where union membership is endogenous. Risk – which enters in the right-hand side of the two status equations – is also treated as endogenous and instrumented for. Siebert and Wei do find support for their hypothesis, that union workers have lower workplace risks and higher VSLs.

### III. Exploring and Addressing Limitations of Compensating Wage Studies

Based on Leigh (1995), Black *et al.* (2003) and Black and Kniesner (2003), one suspects that compensating

<sup>6</sup> In addition, Viscusi (1993) recommends that Equation 3 should include expected worker compensation in the event of a nonfatal workplace accident, i.e.  $(WC \times q)$ , where WC is the level of workers compensation paid out to the worker if he experiences an accident at work.

<sup>7</sup> Dorman and Hagstrom (1998) question the existence of wage-risk compensation for nonunion workers in the US.

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wage studies are rife with econometric problems. In this section, we discuss three main problems: (1) lack of robustness with respect to specification changes, (2) endogeneity of risk, (3) unobserved heterogeneity among workers and/or unobserved heterogeneity specifically in the workers' preferences for risk and income.

*Instability of risk coefficients*

Evidence from recent studies points to the fact that the estimates of the VSL are not robust to even minor changes in the specification of Equation 2, i.e. in the choice of the right-hand side variables. For example, in much empirical work industry dummies are entered in the right-hand side of (2), to capture inter-industry wage differentials, which have been widely documented to exist since Krueger and Summers (1988). Leigh (1995) finds that when industry dummies are included in the regression, the coefficient on risk is no longer significant. He interprets this to imply that inter-industry wage differentials, not compensating wages for risks of dying on the job, explain the positive correlations usually found between wages and mortality risks. He argues that workplace risks tend to be highly correlated with, and end up capturing unpleasant aspects of jobs in certain industries. Another interpretation is, of course, that even broad industry dummies are strongly correlated with workplace mortality risks, and that such collinearity makes it impossible to disentangle the effects of risks from those of one's industry.

In a recent study commissioned by the US Environmental Protection Agency, Black *et al.* (2003) explore the issue of stability of the estimates of the price of workplace risk, using three sources of data about individual workers and two sources of risk data. They show that (i) the estimates of the coefficient on risk vary dramatically with small changes in the inclusion of covariates in the right-hand side of the regression model; (ii) many of these coefficient estimates are negative, instead of positive; and (iii) using flexible functional forms confirms these OLS results.

*Endogeneity and unobserved heterogeneity*

There is reason to believe that job risk is endogenous with the wage rate, the dependent variable in the

regression equation. This is because wage rates and one's job choice (and hence workplace risks) are both likely to be affected by the same individual characteristics (e.g. skills), and these characteristics are usually not well captured using the variables available in most datasets. This results in correlation between risk and the error term in Equation 2:  $E(p_i \varepsilon_i) \neq 0$  and  $E(q_i \varepsilon_i) \neq 0$ .

Using a very rich dataset (the National Longitudinal Study, which reports Armed Forces Qualification Test scores), Black and co-authors find evidence that job risk is indeed correlated with individual characteristics and behaviours not usually available in most commonly used datasets, confirming the above argument and implying that the OLS estimates of the coefficient on risk is biased. Measurement error and self-selection are likely reasons why an effort to estimate a compensating wage model for Italian workers by Barone and Nese (2002) failed to detect a significant relationship between wage rates and objectively measured job risk.

Yet, few empirical studies attempt to correct for endogeneity of wage and risk. Arabsheibani and Marin (2000) begin with treating risk as endogenous, which means that they must instrument for it, and at the same time allow for heterogeneous preferences for risk and income by treating the coefficient on risk as a random variable. However, because of severe collinearity problems, they are not able to compute reliable VSL estimates when correcting for risk endogeneity and end up reporting only results based on treating risk as exogenous.<sup>8</sup> In a later study, Arabsheibani and Marin (2001) suggest that poor instruments are the main causes of these collinearity problems.<sup>9</sup>

This implies that it should be possible to circumvent this problem by finding good instruments and/or by applying techniques based on panel data that construct instruments through transformations of whatever exogenous variables are available (such as the Hausman and Taylor approach, 1981), as we do below.

Using a panel dataset, it is also possible to control for unobserved heterogeneity among workers, which occurs when two individuals with identical observed characteristics have systematically different wage rates. Standard approaches include FE models, which are estimated by the 'within' estimator, and Random-Effects (RE) models, which are estimated by Generalized Least Square (GLS). The latter rely on

<sup>8</sup> When treating workplace mortality as exogenous, they find evidence of the existence of compensating wage differentials consistent with an average VSL to be around £9.7 million, with lower values for manual workers and larger values for managerial/professional workers.

<sup>9</sup> Wei (1999) instruments for risk and assumes that the north and south of England are separate labour markets to identify the VSL using a structural approach similar to that previously used in Biddle and Zarkin (1988).

the assumption that the unobserved effects are uncorrelated with the regressors included in the model, while the former are robust to this possibility, but are less efficient (Hsiao, 2003).

#### Possible estimation approaches

As described in more detail in the next section, we use a panel dataset that follows workers in the UK to study the issues described in Sections 'Instability of risk coefficients' and 'Endogeneity and unobserved heterogeneity'. Our plan is comprised of five main tasks. The first is to instrument for workplace risks. The second is to estimate FE and RE models without instrumenting for risk. Large differences in the estimated coefficients across the coefficients from the FE and RE models – to be formally assessed using the Hausman test – would be interpreted as evidence of correlation between the individual-specific effects and the regressors included in the model.

Next, we allow for risk to be endogenous in a FE model, which we estimate by first-differencing the data and using past risk as the identifying instrument for the first-difference in risk. Formally, if the original model is

$$y_{it} = x_{it}\beta + p_{it}\alpha + c_i + \varepsilon_{it} \quad (3)$$

with  $p_{it}$  potentially correlated with the error term, first-differencing swipes out the FE  $c_i$ , resulting in

$$\Delta y_{it} = \Delta x_{it}\beta + \Delta p_{it}\alpha + \Delta \varepsilon_{it} \quad (4)$$

If the new error term  $\Delta \varepsilon_{it}$  is stationary, this model can be estimated by pooled 2SLS (Wooldridge, 2002, pp. 308–309), where  $x_{it}$  (assumed to be strictly exogenous) and  $p_{it-2}$  serve as instruments for  $\Delta p_{it}$ . Another advantage of this approach is that if workplace risk is measured with error, and if the  $p_{it}$  in (3) is an  $m$ -year moving average of the raw annual risk rates (in our application below and in Viscusi, 2004,  $m=3$ ), taking the first-difference should reduce the measurement error that remains in  $\Delta p_{it}$  (Kniesner *et al.*, 2006).<sup>10</sup> As always with instrumental-variable estimation, it is important to test for overidentifying restrictions to make sure that the selected instruments are appropriate, i.e. they are correlated with the endogenous variable  $\Delta p_{it}$  and uncorrelated with the error term in the main equation,  $\Delta \varepsilon_{it}$ .

Our fourth task is to replace the fixed effect  $c_i$  in model (3) with a random effect, and estimate the RE model thus obtained using the Hausman–Taylor approach, which allows risk as well as other variables to be endogenous. The Hausman–Taylor approach focuses on the regression equation:

$$y_i = X_i\beta + Z_i\alpha + [v_i\iota + \eta_i] \quad (5)$$

where  $y_i$  is a  $T \times 1$  vector of observations on the dependent variable for individual  $i$ ,  $X_i$  is a  $T \times k$  matrix of time-varying regressors and  $Z_i$  is a  $T \times G$  matrix of time-invariant regressors. In the term in brackets,  $v_i$  is the individual-specific component of the error term,  $\iota$  is a  $T \times 1$  vector of ones and  $\eta_i$  is a  $T \times 1$  vector of independent error terms. After stacking individual vectors and matrices of variables, Equation 5 becomes

$$y = X\beta + Z\alpha + [VW + \varsigma] \quad (6)$$

where  $y$ ,  $X$ ,  $Z$  and  $\delta$  have  $nT$  rows,  $V$  is an  $nT \times 1$  matrix of individual dummies and  $W$  is an  $n \times 1$  vector of idiosyncratic error terms. Further, let  $\Omega$  denote the variance-covariance matrix of the error terms in brackets.

The Hausman–Taylor approach first distinguishes between exogenous and endogenous (i.e. correlated with  $W$ ) time-varying and time-invariant regressors, namely  $X = [X_1 : X_2]$  and  $Z = [Z_1 : Z_2]$ , where the subscripts 1 and 2 denote the exogenous and endogenous subsets, respectively. It then implements an instrumental-estimation approach corrected for the nonspherical nature of the variance-covariance matrix of the error terms in the brackets in Equation 6:

$$\begin{bmatrix} \hat{\beta} \\ \hat{\alpha} \end{bmatrix} = [W'\Omega^{-1/2}P_A\Omega^{-1/2}W]^{-1}W'\Omega^{-1/2}P_A\Omega^{-1/2}y \quad (7)$$

where  $P_A = A(A'A)^{-1}A'$ , and  $A$  is a matrix of instruments. Hausman and Taylor propose using (i) the deviations from the individual's means of the  $X_1$ , (ii) the deviations from the means of  $Z_1$  and (iii)  $X_1$  and  $Z_1$  as instruments.

Finally, an alternative type of heterogeneity is the one studied in Arabsheibani and Marin (2000, 2001), who treat risk as endogenous and preferences for risk and income as heterogeneous by allowing the

<sup>10</sup> The labour economics literature has devoted considerable attention to the issue of mismeasured wages (e.g. Griliches and Hausman, 1984; Bound and Krueger, 1991; Bound *et al.*, 2001; Kim and Solon, 2005) and the possible correlation between the measurement error and wages, deriving under which conditions the biases of the coefficients are exacerbated or mitigated by the use of panel data and first-differences. We do not have social security earnings against which to compare the reported wages, so in this article we are forced to ignore this issue and to take wages at face value. We are also forced to ignore the issue that risks might be mismeasured, with similar consequences, but first-differencing should reduce the seriousness of the risk mismeasurement.

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coefficient on risk to be random.<sup>11</sup> Formally, fatal and nonfatal risks are expressed as

$$p_i = \gamma_0 + \mathbf{z}_i \gamma_1 + \varepsilon_{2i} \quad (8)$$

$$q_i = \delta_0 + \mathbf{z}_i \delta_1 + \varepsilon_{3i} \quad (9)$$

In Equations 8 and 9, vector  $\mathbf{z}_i$  includes all covariates contained in  $\mathbf{x}_i$  plus, as per the definition of instrument, additional variables that determine risk choice but are not correlated with the error term in the wage equation. In practice, we choose the same instruments as in our regular 2SLS procedure.

Coefficients  $\beta_2$  and  $\beta_3$  in Equation 2 are replaced with  $\beta_{2i} = \bar{\beta}_2 + u_{1i}$  and  $\beta_{3i} = \bar{\beta}_3 + u_{2i}$ , respectively. After substituting these into the wage equation, one obtains:

$$\ln w_i = \beta_0 + \mathbf{x}_i \beta_1 + p_i \bar{\beta}_2 + p_i u_{1i} + q_i \bar{\beta}_3 + q_i u_{2i} + \varepsilon_{1i} \quad (10)$$

Garen (1984, 1988) proposed a consistent two-step estimation procedure for this model. In the first step, one runs OLS on Equations 8 and 9 and forms the residuals  $\hat{\varepsilon}_{2i}$  and  $\hat{\varepsilon}_{3i}$ . In the second step, one runs OLS on the equation:

$$\ln w_i = \beta_0 + \mathbf{x}_i \beta_1 + p_i \bar{\beta}_2 + c_1 \hat{\varepsilon}_{2i} + c_2 \hat{\varepsilon}_{3i} + c_3 \hat{\varepsilon}_{2i} p_i + c_4 \hat{\varepsilon}_{2i} q_i + c_5 \hat{\varepsilon}_{3i} p_i + c_6 \hat{\varepsilon}_{3i} q_i + e_i \quad (11)$$

For all models and estimation techniques, we fit four specifications to make sure that we examine the effect of adding industry and occupation controls, and nonfatal workplace risks, on the compensating wage differentials.

## IV. Application

### Data

We illustrate the problems discussed in the preceding sections and study their effects on the estimates of the VSL using data on worker characteristics from the

British Household Panel Survey (BHPS). These data are collected through annual surveys, called waves, from 1991 through 2003. Each wave roughly corresponds to a different calendar year. Among other things, the dataset contains information about the workers' occupation, hours worked, earnings, experience, tenure with the present employer, education and family status.

For waves 11, 12 and 13 of the BHPS, which correspond to 2001, 2002 and 2003, we were able to match the BHPS data with 3-year moving averages of the workplace fatality rates for the worker's industry at the four-digit SIC code from the UK's Health and Safety Executive (HSE).<sup>12</sup> Using 3-year moving averages in lieu of the raw mortality rates is common in compensating wage studies (Viscusi, 2004) to smooth out any unusual fluctuations in fatalities and to reduce the prevalence of industry or occupation cells where the mortality rate is zero in a given year. We express fatality rates as  $X$  per 100 000 a year.

As in earlier studies, attention is restricted to full-time male workers aged 20–65 living in England and Wales. Because of the very distinct risk-related circumstances of their work environment, we excluded farmers, agricultural workers, firefighters, police officers, persons in the Armed Forces and security personnel from our sample.<sup>13</sup> We also created a subset of workers in blue-collar professions.<sup>14</sup> The total number of workers in our full sample is 2458, for a total of 4940 observations.<sup>15</sup> The sample of blue-collar workers is comprised of 1267 persons and 2352 observations. The panel is unbalanced, with roughly equal number of workers being followed for 1, 2, or all 3 years.

Descriptive statistics of the samples are displayed in Table 1. Summary information about occupational risks is reported in Table 2. As shown in Table 2, the average risks are 1.24 in 100 000 a year for all workers and 1.79 in 100 000 a year for blue-collar workers.

<sup>11</sup> This type of heterogeneity is thus conceptually distinct from the heterogeneity usually represented by individual-specific fixed or RE.

<sup>12</sup> Specifically, we average the risk of the current year with those of the two previous years.

<sup>13</sup> SIC 92 categories A, B, P and Q and SOC 90 codes 600–619, 900–903.

<sup>14</sup> We define as blue-collar jobs SOC 80 codes: 500–599 (craft and related occupations), 620–699 (personal occupations), 719–722 (sales assistants and check-out operators plus other sales representatives), 733 (scrap dealers and scrap metal merchants), 800–899 (plant and machine operatives) and 910–990 (other occupations except for agriculture, forestry and fishing).

<sup>15</sup> For the 2001–2003 period, the BHPS contains 26 703 observations. We lose about half of this sample once we exclude women, 979 observations when we restrict attention to persons aged 18–65, and 734 when we rule out persons in high-risk professions. Of the 11 921 remaining observations, for 285 we were unable to match risk data. For 1139, we did not have income information; 600 are excluded because these workers report being employed full time, but wages are less than £4000 a year, and 539 are excluded because the workers do not work full time. This leaves us with 9358 observations, from which we drop persons that live in Wales or Northern Ireland (losing 2878 observations) and observations for which 3-year average risk rates could not be computed (49 observations). This leaves us with a sample of 6431 observations, but the usable sample is 4940 because of missing values for a number of covariates.

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Table 1. Descriptive statistics

Waves 11-13 Variable	Description	Full sample (n = 4940)				Blue collar workers (n = 2352)			
		Mean	SD	Min.	Max.	Mean	SD	Min.	Max.
incdef	Annual income in 1996 pounds	20 628	12 016	3 781	221 873	16 616	6 947	3 781	142 612
educ	Education in years	10.257	1.089	6	15	9.850	0.810	6	14
experience	Work experience in years	24.3	11.0	3	52	24.1	11.4	3	52
expsq	Experience squared	712.5	574.6	9	2704	711.9	593.7	9	2704
jbot	Overtime hours in normal week	5.296	7.015	0	80	5.557	7.216	0	80
tenure	Years at current job	5.360	6.532	0	46	6.108	7.062	0	46
healthy	(1/0) 1 = healthy (self-reported)	0.923	0.266	0	1	0.921	0.270	0	1
white	(1/0) 1 = white	0.266	0.442	0	1	0.259	0.438	0	1
union	(1/0) 1 = member of union	0.312	0.463	0	1	0.358	0.480	0	1
inlondon	(1/0) 1 = lives in inner London	0.022	0.148	0	1	0.014	0.116	0	1
outlondon	(1/0) 1 = lives in outer London	0.051	0.220	0	1	0.034	0.181	0	1
southeast	(1/0) 1 = lives in SE region	0.173	0.379	0	1	0.137	0.344	0	1
swea	(1/0) 1 = lives in SW region or east Anglia	0.128	0.334	0	1	0.134	0.341	0	1
midlands	(1/0) 1 = lives in Midlands region	0.157	0.364	0	1	0.164	0.370	0	1
manmersey	(1/0) 1 = lives in Manchester/Merseyside	0.052	0.223	0	1	0.049	0.216	0	1
restengland	(1/0) 1 = lives in other region in England	0.182	0.386	0	1	0.200	0.400	0	1
wales	(1/0) 1 = lives in Wales	0.233	0.423	0	1	0.268	0.443	0	1
managers	(1/0) 1: SOC = 100-199	0.197	0.398	0	1	0.000	0.000	0	0
professionals	(1/0) 1: SOC = 200-299	0.106	0.308	0	1	0.000	0.000	0	0
associates	(1/0) 1: SOC = 300-399	0.097	0.295	0	1	0.000	0.000	0	0
clerical	(1/0) 1: SOC = 400-499	0.096	0.295	0	1	0.000	0.000	0	0
craft	(1/0) 1: SOC = 500-599	0.204	0.403	0	1	0.429	0.495	0	1
service	(1/0) 1: SOC = 600-699	0.023	0.151	0	1	0.049	0.217	0	1
sales	(1/0) 1: SOC = 700-799	0.043	0.204	0	1	0.042	0.200	0	1
operatives	(1/0) 1: SOC = 800-899	0.168	0.374	0	1	0.354	0.478	0	1
y2001	(1/0) 1: year = 2001	0.399	0.490	0	1	0.396	0.489	0	1
y2002	(1/0) 1: year = 2002	0.284	0.451	0	1	0.284	0.451	0	1
mining	(1/0) 1: SIC 92 section C	0.004	0.067	0	1	0.008	0.090	0	1
manufacturing	(1/0) 1: SIC 92 section D	0.308	0.462	0	1	0.400	0.490	0	1
gaselectric	(1/0) 1: SIC 92 section E	0.016	0.124	0	1	0.015	0.123	0	1
construction	(1/0) 1: SIC 92 section F	0.091	0.288	0	1	0.139	0.346	0	1
wholesale	(1/0) 1: SIC 92 section G	0.129	0.335	0	1	0.125	0.331	0	1
hotelrest	(1/0) 1: SIC 92 section H	0.021	0.142	0	1	0.028	0.164	0	1
transport	(1/0) 1: SIC 92 section I	0.105	0.307	0	1	0.144	0.351	0	1
finance	(1/0) 1: SIC 92 section J	0.020	0.139	0	1	0.001	0.036	0	1
realestate	(1/0) 1: SIC 92 section K	0.117	0.321	0	1	0.051	0.219	0	1
public	(1/0) 1: SIC 92 section L	0.071	0.257	0	1	0.020	0.139	0	1
education	(1/0) 1: SIC 92 section M	0.047	0.211	0	1	0.008	0.087	0	1
health	(1/0) 1: SIC 92 section N	0.034	0.181	0	1	0.023	0.148	0	1
social	(1/0) 1: SIC 92 section O	0.038	0.192	0	1	0.039	0.194	0	1
maedhi_1	(1/0) 1: mother never went to school	0.010	0.097	0	1	0.006	0.080	0	1
maedhi_2	(1/0) 1: mo. left school with no quals	0.390	0.488	0	1	0.427	0.495	0	1
maedhi_3	(1/0) 1: mo. left school with some quals	0.273	0.446	0	1	0.230	0.421	0	1
maedhi_4	(1/0) 1: mo. got further education quals	0.116	0.320	0	1	0.099	0.299	0	1
maedhi_5	(1/0) 1: mo. got univ./higher degree	0.031	0.173	0	1	0.013	0.114	0	1
motheducmiss	(1/0) 1: mother's education missing	0.180	0.384	0	1	0.223	0.416	0	1
paedhi_1	(1/0) 1: father never went to school	0.008	0.089	0	1	0.006	0.074	0	1
paedhi_2	(1/0) 1: fa. left school without quals	0.352	0.478	0	1	0.371	0.483	0	1
paedhi_3	(1/0) 1: fa. left school with some quals	0.169	0.375	0	1	0.162	0.369	0	1
paedhi_4	(1/0) 1: fa. got further education quals	0.221	0.415	0	1	0.194	0.395	0	1
paedhi_5	(1/0) 1: fa. got univ./higher degree	0.051	0.220	0	1	0.020	0.139	0	1
fatheducmiss	(1/0) 1: father's education missing	0.200	0.400	0	1	0.247	0.432	0	1

There is also more variability in the risks of blue-collar works, which suggests that this subsample might lend itself better to a compensating wage differential study (Moore and Viscusi, 1990b).

Since we wish to estimate, among other things, FE models, which rely crucially on the variation in risk over time for the same workers, it is useful to assess the relative importance of the 'within' and 'between'

Table 2. Job-related risks by four-digit SIC

	Full sample (N=4940)		Blue-collar workers (N=2352)	
	Fatal injuries	Nonfatal injuries	Fatal injuries	Nonfatal injuries
Mean (per 100 000)	1.24	161.20	1.79	203.27
SD	2.60	157.69	3.07	164.07
Minimum	0	0	0	0
Maximum	55.42	1952.15	55.42	1952.15

variation in risk. When attention is restricted to those workers for whom we have repeated observations (1590 workers in the full sample and 711 workers in the blue-collar sample), we find that the 'within' variation accounts for about 25% of the total variation in risk for the full sample, and for 29% for the blue-collar sample. Out of the 1590 full-sample workers for whom we have repeated observations, 717 (about 45%) change jobs (industry) during the three study years. Out of the 711 blue-collar workers for whom we have repeated observations, 320 (about 45%) change industry during the study period. For both all workers and blue-collar workers, there is a change in the industry of employment in 17% of the total observations.<sup>16</sup>

Despite this variability over time, the risks in our sample are small when compared with those in Viscusi (2004), who uses worker data from the 1996 Current Population Survey in the US and where the average fatality risk over 1992–1997 is 4.02 in 100 000. Perusal of workplace fatality rates over four decades show that they have declined over time in the UK, and that they are at their lowest, exactly for the period covered by this study: as shown in Fig. 2, in the UK fatal workplace accident rates per 100 000 employees fell from about 5.8 in 1959 to 0.7 in 2004. The decline has been quite steady, approximately following an exponential decrease rate of 4.75% per annum.<sup>17</sup>

Table 2 also reports descriptive statistics about nonfatal injury risk. Of the two rates provided by HSE, we restrict attention to major injuries, defined

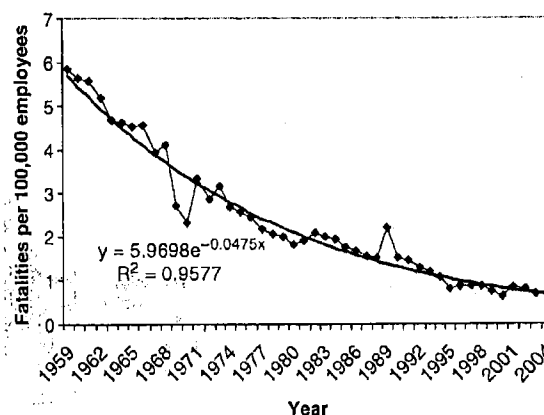


Fig. 2. UK overall fatality rates 1959–2004 (all industries and occupations)

as those that result in an absence of work of 3 or more days. We do so in hopes of limiting reporting incentives and other effects previously noted, among others, by Siebert and Wei (1994). Note that the risk of a fatal injury on the job is not significantly different for union versus nonunion workers.<sup>18</sup>

#### Robustness of VSL estimates to the inclusion/exclusion of variables

As discussed above, earlier literature has suggested that the compensating wage differentials, and hence the estimates of the VSL, are not robust to adding

<sup>16</sup> We are, however, concerned that in some cases this change might be only apparent, perhaps due to a better identification of the industry the worker belongs to. For example, when we look at blue-collar workers whose SIC code changes over the period covered by our study and at the same time report a tenure of 0 years (indicating that they are beginning a new job); about 665 appear to be in this situation.

<sup>17</sup> Fatality rates declined by 3.1 per 100 000 in the 10 years between 1959 and 1969, but the corresponding decrease between 1994 and 2004 was only 0.36. If this process continues at the same rate, only 0.28 lives per 100 000 employees will be saved by safety measures imposed between 2004 and 2014. Further, workplace accidents account for a smaller and smaller share of all-cause mortality risks. For males aged 25–35, for example, the ratio of job mortality risk to the risk of dying for all causes fell from 2.7% in 1976 to 0.7% in 2003, the year of wave 13 of the BHPS. Similar trends are seen for other age groups as well.

<sup>18</sup> In the full sample, there are 1540 and 3400 union and nonunion workers, with mean fatality risks of 1.29 in 100 000 and 1.23 in 100 000, respectively. The SDS are 2.98 and 2.41 in 100 000, and the *t*-statistic for the difference in means is 0.879, which means that there are no significant differences across the two groups. Among blue-collar workers, 842 are unionized and 1510 nonunionized. The corresponding means (SDS) are 1.86 (3.6) and 1.75 (1.7) per 100 000, with a resulting *t*-statistic of 0.766.

Table 3. OLS coefficient on risk variables for different model specifications

Risk based on SIC, OLS	Fatal risk only		Fatal and nonfatal risk	
	A No industry or occupation dummies	B With industry and occupation dummies	C No industry or occupation dummies	D With industry and occupation dummies
All workers ( $n = 4940$ )				
Coeff.	0.0072417	0.0054978	0.0137614	0.009623
t-stat.	3.12	2.23	4.60	3.27
Coeff. on nonfatal			-0.0001723	-0.0001272
t-stat.			-3.44	-2.56
VSL (million 1996 £)	14.94	11.34	28.39	19.85
Blue-collar workers ( $n = 2352$ )				
Coeff.	0.0134518	0.0069669	0.0139539	0.0117124
t-stat.	5.69	2.71	4.43	3.57
Coeff. on nonfatal			-0.0000143	-0.0001421
t-stat.			-0.24	-2.33
VSL (million 1996£)	22.35	11.58	23.19	19.46

Notes: All regressions control for experience, experience squared, overtime hours worked, tenure and dummies for health status, union membership, race and location. Mean labour income: £20 628 (full sample), £16 616 (blue collar). The VSL is expressed in million British pounds in 1996 prices; to convert to 2000 dollars, multiply by 1.66.

explanatory variables – such as industry dummies or nonfatal injury risk – to the right-hand side of the wage equation. Are these results common when fitting hedonic wage equations, or are they specific to the US data for which they were originally claimed?

To answer this question, we specify a linear model similar to Equation 3, where the dependent variable is log annual wages and the independent variables include education, experience, experience squared, overtime worked, tenure with the present employer, a good health dummy, a race dummy, union status, regional dummies, plus the risk variable(s) and, depending on the specification, industry and occupation dummies. The model is estimated using OLS.

The results of this exercise are shown in Table 3. They suggest that for the full sample the VSL remains relatively stable when industry and occupation dummies are added to the regression equations (columns A and B, respectively), but that further controlling for nonfatal risk almost doubles the VSL (column C), which then falls by about 30% when industry and occupation dummies are further added.<sup>19</sup> Although there appears to be evidence of significant compensating wage differentials, there are reasons to question these results. First, the VSL values are high and well above the values considered acceptable by Viscusi and Aldy (2003) (\$5–10

million). The second is that they change dramatically when nonfatal risks are included in the equation, and the coefficient on nonfatal risks is *negative*, which does not bode well for establishing the existence of and measuring compensating wage differentials.

The second panel displays results and implicit VSLs for blue-collar workers. When we control for fatal and nonfatal risk, the VSL (column C) is similar to that of column A, and adding further industry and occupation controls (column D) has a relatively modest effect (a 15% reduction) on the VSL.<sup>20</sup> However, there is a 50% reduction in the VSL when industry and occupation controls are added in the equation that uses only fatal risks. Moreover, the VSL figures are, again, high. Caution should be used when interpreting these results. Viscusi (2003) notes that if most accidents happen to blue-collar workers, but fatality rates are computed using all workers in a particular industry as the denominator, blue-collar risks will be understated and their VSL overstated. Since we are unable to calculate a risk rate specific for blue-collar workers only, our estimates of the VSL for blue-collar workers are potentially affected by this problem.

#### Exploiting the panel structure of the data

Results for the FE and the RE models are reported in the top panel of Table 4 for all workers and of

<sup>19</sup> The VSL is calculated as the product of  $\beta_2$  by average wage, times 100 000 (because risk is expressed as  $\Delta E - 05$ ).

<sup>20</sup> As Leigh (1995) has shown, apparent wage/risk differentials can be caused by inter-industry wage differentials. In our data, coefficients remained significant even after including industry dummies, which is probably due to the fact that risk is measured on the four-digit SIC level, whereas the industry dummies were based on major categories.

Table 4. Compensating wage regression results for the full sample

Risk based on SIC, all workers	Fatal risk only		Fatal and nonfatal risk	
	No industry or occupation dummies	With industry and occupation dummies	No industry or occupation dummies	With industry and occupation dummies
FE ( $n=4072$ )				
Coeff. on mortality rates	-0.0007503	0.0002574	0.0008379	0.0018583
<i>t</i> -stat.	-0.37	0.12	0.34	0.74
Coeff. on nonfatal injury rates			-0.0000479	-0.0000544
<i>t</i> -stat.			-1.18	-1.27
VSL	n/a	0.53	1.73	3.83
RE ( $n=4072$ )				
Coeff. on mortality rates	0.0012881	0.0024189	0.0039372	0.0047166
<i>z</i> -stat.	0.68	1.15	1.71	1.93
Coeff. on nonfatal injury rates			-0.0000772	-0.0000757
<i>z</i> -stat.			-2.02	-1.82
Hausman test statistic	265	1267	273	1298
$\chi^2$ Degrees of freedom	12	31	14	33
<i>p</i> -value	<0.0001	<0.0001	<0.0001	<0.0001
VSL	2.66	4.99	8.12	9.73
2SLS ( $n=4940$ )				
Coeff. on mortality rates	-0.1949241	-0.1581687		
<i>t</i> -stat.	-4.27	-2.48		
VSL	n/a	n/a		
Test for overidentifying instr.	20.25	22.23		
$\chi^2$ Degrees of freedom	26	46		
<i>p</i> -value	0.7796	0.9988		
Garen proc. ( $n=4940$ )				
Coeff. on mortality rates	-0.193525	-0.15676		
<i>t</i> -stat.	-6.79	-3.39		
VSL	n/a	n/a		
First differences 2SLS ( $n=2197$ )				
Coeff. on mortality rates	-0.0038741	-0.0046378	-0.0102986	-0.0082599
<i>t</i> -stat.	-0.81	-0.85	-1.03	-0.85
Coeff. on nonfatal injury rates			0.0001229	0.0000919
<i>t</i> -stat.			0.79	0.59
VSL	n/a	n/a	n/a	n/a
Test for overidentifying instr.	15.38	15.38	14.94	40.21
$\chi^2$ Degrees of freedom	24	43	24	43
<i>p</i> -value	0.9091	>0.9999	0.9225	0.5930
Hausman-Taylor ( $n=4072$ )				
Coeff. on mortality rates	-0.0006194	0.0004424	0.0010411	0.0020218
<i>z</i> -stat.	-0.34	0.22	0.47	0.88
Coeff. on nonfatal injury rates			-0.0000501	-0.0000537
<i>t</i> -stat.			-1.36	-1.36
VSL	n/a	0.91	2.15	4.17

Notes: All regressions control for experience, experience squared, overtime, hours worked, tenure and dummies for health status, union membership, race and location. Mean labour income: £20 628 (full sample), £16 616 (blue-collar). The VSL is expressed in million British pounds in 1996 prices; to convert to 2000 dollars, multiply by 1.66.

Table 5 for blue-collar workers. For the full sample, the 'within' and GLS coefficients on fatal risk are generally positive (with one exception), but always small and statistically insignificant. Controlling for nonfatal risks strengthens results somewhat, but, as with OLS estimation, nonfatal risks continue to be negatively associated with wages.

Taken together, these results question the very existence of compensating wage differentials, or at least our ability to identify them. The estimates of the VSL are statistically insignificant in five cases out of eight and significant at the 10% level in two cases. Hausman tests reject the null of no correlation between individual-specific effects and the included

Table 5. Compensating wage regression results for blue-collar workers

Risk based on SIC, blue-collar workers only	Fatal risk only		Fatal and nonfatal risk	
	No industry or occupation dummies	With industry and occupation dummies	No industry or occupation dummies	With industry and occupation dummies
<b>FE (<i>n</i> = 1796)</b>				
Coeff. on mortality rates	0.0008267	0.0020324	0.004904	0.0049259
<i>t</i> -stat.	0.33	0.79	1.55	1.52
Coeff. on nonfatal injury rates			-0.0001227	-0.0000934
<i>t</i> -stat.			-2.05	-1.49
VSL	1.37	3.38	8.15	8.18
<b>RE (<i>n</i> = 1796)</b>				
Coeff. on mortality rates	0.0047789	0.0048204	0.0081148	0.0093041
<i>z</i> -stat.	2.14	2.03	2.82	3.13
Coeff. on nonfatal injury rates			-0.0000992	-0.0001422
<i>z</i> -stat.			-1.84	-2.51
Hausman test statistic	114	223	118	247
$\chi^2$ Degrees of freedom	11	25	12	26
<i>p</i> -value	<0.0001	<0.0001	<0.0001	<0.0001
VSL	7.94	8.01	13.48	15.46
<b>2SLS (<i>n</i> = 2352)</b>				
Coeff. on mortality rates	-0.0331052	-0.0920726		
<i>t</i> -stat.	-1.12	-1.68		
VSL	n/a	n/a		
Test for overidentifying instr.	38.57	23.99		
$\chi^2$ Degrees of freedom	26	42		
<i>p</i> -value	0.0536	0.9885		
<b>Garen proc. (<i>n</i> = 4940)</b>				
Coeff. on mortality rates	-0.0307729	-0.0913419		
<i>t</i> -stat.	-1.12	-2.13		
VSL	n/a	n/a		
<b>First differences 2SLS (<i>n</i> = 970)</b>				
Coeff. on mortality rates	-0.0043936	-0.0053483	-0.0158598	-0.0226084
<i>t</i> -stat.	-0.53	-0.55	-0.50	-0.73
Coeff. on nonfatal injury rates			0.0001824	0.0002946
<i>t</i> -stat.			0.42	0.69
VSL	n/a	n/a	n/a	n/a
Test for overidentifying instr.	14.16	11.74	13.58	10.96
$\chi^2$ Degrees of freedom	22	35	22	35
<i>p</i> -value	0.8957	0.9999	0.9157	>0.9999
<b>Hausman-Taylor (<i>n</i> = 4072)</b>				
Coeff. on mortality rates	0.0007297	0.0020311	0.0047708	0.0049165
<i>z</i> -stat.	0.24	0.82	1.21	1.12
Coeff. on nonfatal injury rates			-0.0001216	-0.0000917
<i>t</i> -stat.			-1.63	-1.07
VSL	1.21	3.37	7.93	8.17

Notes: All regressions control for experience, experience squared, overtime hours worked, tenure and dummies for health status, union membership, race and location. Mean labour income: £20 628 (full sample), £16 616 (blue collar). The VSL is expressed in million British pounds in 1996 prices; to convert to 2000 dollars, multiply by 1.66.

regressors, suggesting that we should not trust the results from GLS estimation of the RE model. If we rely on the FE model, however, there is no evidence at all of an association between risk and wages.

For blue-collar workers, the 'within' coefficients on risks are positive but insignificant, whereas their GLS

counterparts are positive and significant, and their magnitudes double when nonfatal workplace risks are added in the regression equation. As before, Hausman tests reject the null of uncorrelation between individual-specific effects and included regressors, implying that the GLS estimates and VSLs are biased.

*Endogeneity of risk*

The Hausman tests confirm the notion that individual characteristics that influence wages but cannot be observed and get soaked up in the error term of (3) may be correlated with workplace risk, making the OLS estimates biased and inconsistent. To circumvent the problem of endogeneity, we instrument for workplace risk and estimate Equation 3 using 2SLS. Our instruments are all of the right-hand side variables of Equation 3 plus dummies for the educational attainment of the worker's mother and father, respectively. (We had earlier considered as candidate identifying instruments, and subsequently rejected, nonlabour income, marriage status and wife income, and homeownership status, which were found to have virtually no predictive power for the choice of workplace risks and/or failed tests of overidentifying restrictions.) Note that union membership was never a significant predictor of risk.

The results from 2SLS and the Garen procedure are displayed in the second panel of Table 4 (for the full sample) and Table 5 (for blue-collar workers). For simplicity, we restrict attention to the models that include only fatal risk. The coefficients on this variable are very similar across the two estimation procedures and robust to adding industry and occupation dummies, but negative and significant, which is against the notion of compensating wage differentials. In general, we are dissatisfied with 2SLS and the Garen procedure: the coefficients on risk for all workers are an order of magnitude larger (in absolute value) than those for blue-collar workers, and the (absolute) magnitude of the former is implausible.<sup>21</sup>

Our next approach allows for FE and endogeneity between risks and wages. We first-difference the data to swipe out the FE, and then we instrument for  $\Delta p_{it}$  using the lagged exogenous variables (job overtime, health status of the worker, location dummy) and risk in the levels lagged twice as our identifying instrument (Wooldridge, 2002). The results of the pooled 2SLS on the first differences are reported in the bottom panel of Table 4 for the full sample and in the bottom panel of Table 5 for the blue-collar workers. In both the cases, the coefficient on risk is negative and insignificant at the conventional levels. There is no evidence of compensating wage differentials, but

the econometric procedure is more satisfactory than the earlier ones, in that (i) the tests for overidentifying restrictions never reject the null and (ii) the coefficients on risk are similar across the two samples. Similar results – no significant association between risk and wages – are obtained if we use  $P_{t-1}$  or  $P_{t-3}$  in lieu of  $P_{t-2}$ , and if we use  $P_{t-2}$  and  $P_{t-3}$  as identifying instruments. The sign of the estimated  $\alpha$  in Equation 4 sometimes changes as we replace one lagged risk with another, but the estimated coefficients are always completely insignificant (results available from the authors upon request).

One limitation of the above approach is that we would like to allow other regressors to be endogenous with wage, and are concerned about good instruments and the efficiency of the estimates. To circumvent these problems, we implement the Hausman-Taylor procedure, treating education as an endogenous time-invariant regressor, and experience, experience squared, tenure, union status and occupation and industry dummies as endogenous time-varying regressors. Race, good health, geographical dummies and job overtime are regarded as exogenous variables.

The results show that whether or not one controls for nonfatal risk, the coefficients on fatal risk are positive, but statistically insignificant for both the full sample and the subset of blue-collar workers. (Only in one specification, that of column (A) for the full sample, do we get a negative coefficient on risk.) The estimates of the VSL are insignificant, but within reasonable ranges – £3–8 million for all workers and £1.21–8.17 for blue-collar workers.

**V. Conclusions**

Much of the earlier literature on compensating wages and VSL is based on cross-sections of workers and on the assumption that workplace risks are exogenous, raising the question whether the VSL figures they obtain are biased. Unlike previous studies, we use panel data documenting wages and other individual characteristics of UK workers to examine whether the evidence of compensating wage differentials for workplace risk and to recover estimates of the VSL

<sup>21</sup> One possible explanation for this is that only roughly 3–5% of the variation in job risk for all workers can be predicted using the instruments, with the remainder being absorbed into the residuals  $\hat{\varepsilon}_{2t}$ . As a consequence, the residuals are highly correlated with job risk and with  $\hat{\varepsilon}_{2t}p_{it}$  in Equation 9. The correlation coefficient between  $\hat{\varepsilon}_{2t}$  and  $p_{it}$  is 0.98 for all workers and also for blue-collar workers, which explains why the regression coefficient  $\beta_2$  is so sensitive to the inclusion of the residuals. Arabsheibani and Marin (2001) report that they encountered the very same problem, despite using a broader set of instruments and obtaining much better first-stage  $R^2$ , and conclude that compensating risk differentials extracted in this way should be viewed with great caution due to multicollinearity.

implicit in workers' job choices. We have risk data at the four-digit industry level.

With this particular dataset, any evidence of compensating wage differential is at best inconclusive. We get large VSL figures only under the strongest possible assumptions, i.e. when unobserved heterogeneity and endogenous regressors are ruled out. Even so, the VSLs are suspiciously large and often very sensitive to the inclusion/exclusion of certain key regressors. Another problematic result is that when we include nonfatal workplace risks in the regression, its coefficient is negative (and often significant). We attribute the latter result to the correlation between fatality rates and the risk of nonfatal injuries (Dillingham *et al.*, 1996; Miller, 2000), pervasive measurement errors in nonfatal injury rates (Black and Kniesner, 2003), and reporting problems with nonfatal injuries (Siebert and Wei, 1994).

As soon as we allow for unobserved heterogeneity and use an estimation technique that does not rely on the assumption of uncorrelation between unobserved effects and included regressors, the evidence of risk premiums disappears. We reach the same conclusion when we further allow for endogenous risks and right-hand side variables, in addition to unobserved effects. In many cases, the coefficient on fatal risks is negative and insignificant, providing no empirical support for the existence of compensating wage differentials.

In general, one would expect the OLS estimates of the coefficient on risks to be downward biased if risks are endogenous or mismeasured, assuming that the measurement error is classical (i.e. there is no correlation between it and the included regressors or the dependent variable). Remedying these problems through appropriate estimation techniques would thus be expected to produce larger coefficients on risks, and hence larger VSLs. Siebert and Wei (1994) show that if workers with greater unmeasured ability obtain better pay and choose safer jobs than less-skillful workers, pay may appear to be negatively correlated with risks, even though more skillful workers actually receive large compensating wage differentials for a given level of risk. On the assumption that union workers are likely to have greater unobserved ability, Siebert and Wei estimate switching regression equations where union

membership is endogenous and workplace risks are also treated as endogenous, and find that union workers have *higher* compensating wage differentials. Pooled-sample OLS estimation would incorrectly lead one to the opposite conclusion.

In our case, when we instrument for risks and try to purge out the measurement error, we see any evidence of compensating wage differentials vanish. Our results are thus in contrast with the standard attenuation bias story and with the hypothesis that more skillful workers will select better pay and lower risks. They are, however, consistent with the possibility that risk measurement errors might be correlated with other included regressors, in which case it is difficult to sign the bias of the OLS estimates (Black *et al.*, 2003; Black and Kniesner, 2003). This would happen if, for example, within a certain industry assignment to riskier shifts is correlated with worker characteristics such as age, gender and ethnicity.<sup>22</sup> They are also consistent with the possibility formally analysed by Shogren and Stamland (2002) that workers might be heterogeneous in preferences (for risks and income) and skills, in which case higher-risk jobs are chosen by individuals who are more risk-tolerant or (feel that they) have skills to avoid fatal accidents on the job. Shogren and Stamland show that this would overstate the VSL.<sup>23</sup>

It is also possible that compensating wage differentials, these days are detectable only when attention is restricted to specific occupations, industries or firm sizes, and that our approach has simply been unable to pick them up. It is natural to think about the contrast between union and nonunion workers, but we do not believe our data warrant the model deployed by Siebert and Wei. In our sample, pay is higher among union members when we look at the full sample, but when we restrict attention to blue-collar workers the association between pay and union status (controlling for other worker characteristics) is weaker. Moreover, we find that risks tend to be roughly the same among union and nonunion individuals.

In sum, our results raise doubts about the existence of compensating wage differentials for job risk and/or the analyst's ability to detect them using recent labour market data, despite the availability of longitudinal data and the opportunity to control for unobserved worker characteristics. Caution should,

<sup>22</sup> Black and Kniesner illustrate this case for the fast-food industry. If younger and female clerks are assigned to daytime shifts, while older males do nighttime shifts, when the likelihood of robberies is higher, then the risks of younger and female clerks are overstated and those of older males are understated. Clearly, the measurement error is correlated with age and gender.

<sup>23</sup> This would happen because we infer the compensating wage differential from a marginal worker – a low-skill, high-risk worker – who is the one that demands the most compensation for workplace risks. But this maximum compensating differential is divided by the average risks to get the VSL, resulting in an overestimate of the latter.

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of course, be used when interpreting these results. For starters, workplace risks in our dataset are low during our study period – indeed, at a historical low for the UK – which may have impaired our ability to detect compensating wage differentials (or to rule out with confidence their existence). Mrozek and Taylor's meta-analysis (2002) finds that the estimated VSLs tend to be quadratic in risks, with the lowest VSLs being found in the studies with the lowest and highest risk levels. The average risks in our sample are well below those in the studies covered by Mrozek and Taylor, even when attention is restricted to blue-collar workers, placing us in the range where small or no compensating wage differentials are observed.

Second, workplace fatality risk has been declining sharply over the period 1959 to 2004. This reflects changes that may be legally and technologically driven, making the notion of stable compensating wage differentials that result from negotiation between the worker and the employer very suspect. This does not, of course, mean that people do not value safety, and indeed Costa and Kahn (2004) have documented that in the US over the last few decades, workplace risks have declined and the VSL has risen, which means that individuals have placed an increasingly large value on safety.

Third, we took great pains to look for good instruments for workplace risks, but future studies might be designed to exploit exogenous changes in workplace regulations, which might serve as instruments for workplace risks. Since we have not been able to track the recent dynamics of such shifts, we conclude that if compensating differentials for risk exist, a host of econometric problems as well as a changing workplace risk environment prevent us from observing them.

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## VALUING LIFE: A PLEA FOR DISAGGREGATION

CASS R. SUNSTEIN†

### ABSTRACT

*Each government agency uses a uniform figure to measure the value of a statistical life (VSL). This is a serious mistake. The very theory that underlies current practice calls for far more individuation of the relevant values. According to that theory, VSL should vary across risks. More controversially, VSL should vary across individuals—even or especially if the result would be to produce a lower number for some people than for others. One practical implication is that a higher value should be given to programs that reduce cancer risks. Another is that government should use a higher VSL for programs that disproportionately benefit the wealthy—and a lower VSL for programs that disproportionately benefit the poor. But there are two serious complications here. First, bounded rationality raises problems for the use of private willingness to pay, which underlies current calculations of VSL. Second, the beneficiaries of regulation sometimes pay only a fraction or even none of its cost; when this is so, the appropriate VSL for poor people might be higher, on distributional grounds, than market evidence suggests. An understanding of this point has implications for foundational issues about government regulation, including valuation of persons in poor and wealthy nations.*

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## INTRODUCTION

For over two decades, executive orders have required regulatory agencies to engage in cost-benefit analysis of major regulations,<sup>1</sup> and Congress has imposed similar requirements in several statutes.<sup>2</sup> To

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1. See STEPHEN BREYER ET AL., *ADMINISTRATIVE LAW AND REGULATORY POLICY* 120-35 (5th ed. 2002) (examining executive orders that require federal agencies to balance the benefits of their decisions against the cost).

2. See, e.g., Federal Insecticide, Fungicide, and Rodenticide Act, 7 U.S.C. § 136(bb) (2000) (defining "unreasonable adverse effects on the environment" as "any unreasonable risk to man or the environment, taking into account the economic, social, and environmental costs and benefits of the use of any pesticides"); Toxic Substances Control Act, 15 U.S.C. § 2605(c)(1)

conduct cost-benefit analysis, agencies must assign monetary values to human lives that are potentially saved by a proposed regulation. How do they come up with the numbers that they use? Do some deaths count for more than others?

The Environmental Protection Agency (EPA) uses a uniform value for a statistical life (VSL): \$6.1 million.<sup>3</sup> Other agencies use numbers that are both higher and lower than the EPA's VSL, with a range, in recent years, between \$1.5 million (the Federal Aviation Administration (FAA) in 1990<sup>4</sup>) and the Food and Drug Administration's (FDA's) current figure of \$6.5 million.<sup>5</sup> Although substantial differences can be found across agencies,<sup>6</sup> uniformity is the intended practice within each agency.<sup>7</sup> No agency treats cancer risks,

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(2000) (mandating that the administrator consider and publish a statement documenting the effects, benefits, and economic impacts of proposed toxic substance regulations); Safe Drinking Water Act, 42 U.S.C. § 300g-1(b)(3)(c) (2000) (requiring the documentation of quantifiable and nonquantifiable costs and benefits in the establishment of maximum contaminant levels).

3. National Primary Drinking Water Regulations; Arsenic and Clarifications to Compliance and New Source Contaminants Monitoring, 66 Fed. Reg. 6976, 7012 (Jan. 22, 2001) (codified at 40 C.F.R. pts. 9, 141, and 142). I refer throughout to uniform numbers, but this is of course a simplification. There are differences across agencies, and within agencies practices are variable over time and across regulations. By referring to a uniform number, I mean that regulatory agencies do not distinguish among risks or among protected classes, so as to produce the variations that I emphasize here. Within regulations, uniform numbers are used, and when disparate numbers are used across regulations, it is not because of a judgment about different risks or different protected classes.

In its July 2003 regulation governing food labeling of trans-fatty acids, the Food and Drug Administration used a VSL of \$6.5 million. Food Labeling: Trans Fatty Acids in Nutrition Labeling, Nutrient Content Claims, and Health Claims, 68 Fed. Reg. 41,434, 41,489 (July 11, 2003) (codified at 21 C.F.R. pt. 101). In its March 2003 proposed rule on dietary ingredients and dietary supplements, the same agency suggested a VSL of \$5 million. *See* Current Good Manufacturing Practice in Manufacturing, Packing, or Holding Dietary Ingredients and Dietary Supplements, 68 Fed. Reg. 12,158, 12,229 (proposed Mar. 13, 2003) (to be codified at 21 C.F.R. pts. 111, 112) (using this value to calculate the "value of a statistical life day").

4. The Department of Transportation now uses a higher figure, but one that is still lower than the VSL used by most agencies. *See* Brake System Safety Standards for Freight and Other Non-Passenger Trains and Equipment; End-of-Train Devices, 67 Fed. Reg. 17,556, 17,560 (Apr. 10, 2002) (codified at 49 C.F.R. pt. 232) (recording the Department of Transportation's VSL as \$2.7 million).

5. *Infra* Table 1; *see* Matthew D. Adler & Eric A. Posner, *Implementing Cost-Benefit Analysis When Preferences Are Distorted*, 29 J. LEGAL STUD. 1105, 1146 (2000) (comparing the "valuations of life" advanced by multiple agencies).

6. These differences seem inexplicable.

7. *See* Adler & Posner, *supra* note 5, at 1122-23 (explaining that an agency's use of "a constant figure for the monetized value of life" is one means of correcting for wealth distortions in individual preferences). There are some differences within agencies across contexts and across time, but those differences do not seem deliberate. *See supra* note 3 (comparing VSLs both within and across agencies). The most explicit discussions of varying VSLs have come from

or other mortality risks that produce unusual fear or involve special suffering, as worthy of more concern (and a higher valuation) than other risks. No agency contends that distinctive values should be assigned to the risks associated with airplane deaths, motor vehicle deaths, or deaths from defective children's toys. No agency treats young people as worth more than old people.<sup>8</sup> No agency values the lives of poor people less than the lives of rich people. No agency distinguishes between whites and African Americans or between men and women. For statistical lives, the governing idea is that each life is

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the EPA. In its 2003 discussion of hazardous air pollutants, National Emission Standards for Hazardous Air Pollutants for Industrial/Commercial/Institutional Boilers and Process Heaters, 68 Fed. Reg. 1660 (proposed Jan. 13, 2003) (to be codified at 40 C.F.R. pt. 63), the EPA noted:

There is general agreement that the value to an individual of a reduction in mortality risk can vary based on several factors, including the age of the individual, the type of risk, the level of control the individual has over the risk, the individual's attitude toward risk, and the health status of the individual.

*Id.* at 1695. Nonetheless, the agency announced, without explanation, that it "prefers not to draw distinctions in the monetary value assigned to the lives saved even if they differ in age, health status, socioeconomic status, gender or other characteristic of the adult population." *Id.*

An extended discussion of related issues can be found in the EPA's arsenic proposal, National Primary Drinking Water Regulations; Arsenic and Clarifications to Compliance and New Source Contaminants Monitoring, 65 Fed. Reg. 38,888 (proposed June 22, 2000) (to be codified at 40 C.F.R. pts. 141, 142). In this proposal, the EPA noted that the

factors which may influence the estimate of economic benefits associated with avoided cancer fatalities include (1) a possible 'cancer premium' (i.e., the additional value or sum that people may be willing to pay to avoid the experiences of dread, pain and suffering, and diminished quality of life associated with cancer-related illness and ultimate fatality); (2) the willingness of people to pay more over time to avoid mortality risk as their income rises; (3) a possible premium for accepting involuntary risks as opposed to voluntary [*sic*] assumed risks; (4) the greater risk aversion of the general population as compared to workers in the wage-risk valuation studies; (5) 'altruism' or the willingness of people to pay more to reduce risk in other sectors of the population; and (6) a consideration of health status and life years remaining at the time of premature mortality.

*Id.* at 38,945. The EPA acknowledged that these factors "may significantly increase the present value estimate," but said that "there is currently neither a clear consensus among economists about how to simultaneously analyze each of these adjustments nor is there adequate empirical data to support definitive quantitative estimates for all potentially significant adjustment factors." *Id.* Hence the EPA solicited comments on these issues and said that it would ask its Scientific Advisory Board (SAB) to conduct a review. *Id.* As noted below, the comments produced a sensitivity analysis that contains several upward adjustments from the \$6.1 million figure, *see infra* note 100 and accompanying text, but the SAB's review suggested that at the present time, upward adjustments were not justified by existing evidence, *see infra* note 141 and accompanying text.

8. With the interest in focusing on "life-years," however, this might change. *See* Cass R. Sunstein, *Lives, Life-Years, and Willingness to Pay*, 104 COLUM. L. REV. 205, 206 (2004) ("[G]overnment should consider not simply . . . the VSL; it should concern itself also or instead with the number of life-years at stake, or the value of statistical life-years (VSLY). At the very least, the number of statistical life-years is a more precise measure of what is involved.").

worth exactly the same. With respect to cost-benefit analysis, much is disputed.<sup>9</sup> But on the idea of a uniform value per life saved, there is a solid consensus, at least in terms of regulatory practice.<sup>10</sup>

The stakes are exceedingly high. If cost-benefit analysis is the basis for the ultimate decision to approve or reject a proposed regulation, everything turns on the selected VSL. If an agency uses a VSL of, say, \$15 million, many more regulations will be justified than if it uses a VSL of, say, \$2 million. And if a uniform number is rejected, the pattern of justified regulations will shift dramatically. Some existing regulations will be revealed as too weak, and more stringency will be required; others will seem too aggressive and will have to be weakened or even eliminated. If agencies shifted to using VSLs that varied along one or more variables, the regulatory system would look very different from how it does today.

In this Article, I intend to question the consensus in favor of a uniform VSL, and to do so in a way that raises foundational issues about the economic valuation of human lives. I suggest that a uniform value is obtuse. Under the very approach that agencies use to produce the current numbers, VSL should vary along two dimensions. VSL is calculated based on people's willingness to pay (WTP) to avoid particular risks, and if WTP is particularly high, VSL will be high as well. For two reasons, VSL should be expected to be highly variable, in a way that makes a uniform number senseless.

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9. See generally FRANK ACKERMAN & LISA HEINZERLING, PRICELESS: ON KNOWING THE PRICE OF EVERYTHING AND THE VALUE OF NOTHING (2004) (attacking the very practice of assigning dollar values to lives and health as part of cost-benefit analysis); W. KIP VISCUSI, FATAL TRADEOFFS: PUBLIC AND PRIVATE RESPONSIBILITIES FOR RISK (1992) (suggesting that the government should "respect citizens' preferences" in assigning valuation and thus should consider subjective valuation in cost-benefit analysis, even when such valuation is irrational); Adler & Posner, *supra* note 5, at 1106 ("The problem with the traditional definition of [cost-benefit analysis] in terms of actual preferences is that satisfaction of actual preference and maximization of well-being are not equivalent. . . . Cost-benefit analysis can be redefined as the sum of welfare equivalents . . .").

10. An arguable exception, noted above, involves the debate over whether agencies should focus on lives or instead life-years; the latter approach might well value older people less than younger ones. For discussion, see Sunstein, *supra* note 8, at 205. Professor W. Kip Viscusi implicitly challenges the consensus, stating: "The current approach of ignoring length-of-life issues creates inequities by valuing the life of a person with . . . a 6-month life expectancy the same as a . . . person with a 40-year life expectancy." W. Kip Viscusi, *Risk Equity*, 29 J. LEGAL STUD. 843, 870 (2000). W. Kip Viscusi and Joseph E. Aldy note the existence of heterogeneity by income, union status, and age, and they explain that the "existence of such heterogeneity provides a cautionary note for policy." W. Kip Viscusi & Joseph E. Aldy, *The Value of a Statistical Life: A Critical Review of Market Estimates Throughout the World*, 27 J. RISK & UNCERTAINTY 5, 7 (2003).

First, VSL should vary across risks. For example, people are willing to pay high amounts to avoid cancer risks, and hence there is reason to think that people's VSL is higher for cancer deaths than for sudden, unanticipated deaths.<sup>11</sup> Cancer risks are involved in the work of many regulatory agencies, and people seem to be particularly concerned about such risks, in a way that should produce a high VSL—almost unquestionably higher than the values that agencies now use. More generally, deaths that produce unusual fear,<sup>12</sup> or that are accompanied by high levels of pain and suffering, should be expected to produce a higher VSL. Human beings face countless mortality risks, and it would be truly bizarre to maintain that people value avoiding each of those risks identically.

Second, VSL should vary across individuals, simply because different people are willing to pay different amounts to avoid risks.<sup>13</sup> People who are risk averse will be willing to pay more, and will therefore show a higher VSL, than people who are risk-seeking.<sup>14</sup> Those who are rich will show a higher VSL than those who are poor. People who are thirty might well show a higher VSL than people who are sixty.<sup>15</sup> It follows that different demographic groups will show diversity in their VSLs as well.<sup>16</sup>

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11. See James K. Hammitt & Jin-Tan Liu, *Effects of Disease Type and Latency on the Value of Mortality Risk*, 28 J. RISK & UNCERTAINTY 73, 80 (2004) ("The value of preventing a fatal cancer is often considered to be greater than the value of preventing a fatal trauma in a workplace or transportation accident.").

12. For evidence of a higher VSL for airline risks than for automotive risks, see Fredrik Carlsson et al., *Is Transport Safety More Valuable in the Air?*, 28 J. RISK & UNCERTAINTY 147, 148 (2004) ("There are several reasons why individuals would be willing to pay more for the same risk reduction when traveling by air compared to by other transport modes, such as car or train.").

13. See Viscusi & Aldy, *supra* note 10, at 18 ("[T]ransferring the estimates of a value of a statistical life to non-labor market contexts, as is the case in benefit-cost analyses of environmental health policies for example, should recognize that different populations have different preferences over risks and different values on life-saving.").

14. See Carlsson et al., *supra* note 12, at 158 (finding that people who are scared of flying are willing to pay especially high amounts to reduce the risks associated with flying).

15. See JOSEPH E. ALDY & W. KIP VISCUSI, *AGE VARIATIONS IN WORKERS' VALUE OF STATISTICAL LIFE 1* (Nat'l Bureau of Econ. Research, Working Paper No. 10199, 2003) ("[O]ne might expect that older individuals may value reducing risks to their lives less because they have shorter remaining life expectancy.").

16. Such differences are found in W. Kip Viscusi, *Racial Differences in Labor Market Values of a Statistical Life*, 27 J. RISK & UNCERTAINTY 239, 252 tbl.5 (2003). To get a bit ahead of the story: I am not arguing that government should assign a higher VSL to white lives than to African-American lives. I am speaking here of demographic differences that would emerge from a fully individuated approach to VSL, in which each person's WTP was calculated on an individual basis. Once these values are aggregated, the white VSL would likely be higher than

If these two forms of variability—across risks and across persons—are put together, it will be clear that the unitary \$6.1 million figure used by the EPA is far too crude.<sup>17</sup> Each person in society is willing to pay a distinctive amount to avoid each risk. It follows that in theory, each person should have a particular VSL for each and every risk, resulting in a fully individuated VSL.<sup>18</sup> Such a fully individuated VSL would mean, for example, that agencies would value avoidance of cancer risks more highly than many other mortality risks—and that the VSL of some racial groups would likely be lower than that of others.<sup>19</sup> But the latter differences would not be the result of a governmental decision to take racial characteristics into account; in fact it would not be a product of any kind of group-level discrimination on the government's part.<sup>20</sup> The differences would be the result of aggregating the VSLs calculated for each individual.

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the African-American VSL, simply because of disparities in wealth and income. Richer people pay more for safe cars and smoke alarms than poor people do. *See infra* text accompanying notes 17–21.

17. I use the EPA's \$6.1 million VSL throughout as a convenient example of a unitary figure, but the analysis applies equally to any agency's unitary figure, and to uniformity across agencies.

18. I am putting to one side the complication that values sometimes are constructed, rather than elicited, by social situations—an especially serious complication for contingent valuation studies. *See* John W. Payne et al., *Measuring Constructed Preferences: Toward a Building Code*, 19 J. RISK & UNCERTAINTY 243, 244 (1999) (addressing the “alternate viewpoint . . . that preferences are generally constructed—not revealed—at the time a valuation question is asked”); Cass R. Sunstein & Richard H. Thaler, *Libertarian Paternalism Is Not an Oxymoron*, 70 U. CHI. L. REV. 1159, 1177–78 (2003) (“[I]n the contexts in which [contingent valuation] studies are used, . . . it is unclear that people have straightforward ‘values’ that can actually be found. Hence some form of paternalism verges on the inevitable: Stated values will often be affected . . . by how the questions are set up.” (footnote omitted)).

19. *See* John D. Leeth & John Ruser, *Compensating Wage Differentials for Fatal and Nonfatal Injury Risk by Gender and Race*, 27 J. RISK & UNCERTAINTY 257, 270 (2003) (finding that the implied VSL for Hispanic males is \$5.0 million overall and \$4.2 million for blue-collar workers, whereas the implied VSL for white males is \$3.4 million overall and \$4.2 million for blue-collar workers); Viscusi, *supra* note 16, at 252 (finding VSLs of \$15 million for whites and \$7.2 million for African Americans, \$18.8 million for white males and \$9.4 million for white females, and \$6.9 million for African-American females and \$5.9 million for African-American males).

20. Discrimination might well lay in the background, of course; it almost certainly accounts for the unequal opportunities that produce lower VSLs for African Americans than for whites. *See* Viscusi, *supra* note 16, at 255. Professor Viscusi goes on to suggest that “it is inappropriate to attribute the observed differences to a greater willingness by black workers to bear risk.” *Id.* In a sense Professor Viscusi is correct; there is no reason to think that African-American workers have an intrinsically greater predisposition to take risks. But in the market, one's willingness to bear risks is a product of “market opportunities,” and hence those with fewer opportunities will show a greater willingness to bear risk.

Such aggregation occurs today in, for example, ordinary consumer markets that price reduction of the statistical risks associated with smoke alarms, unusually safe cars, and much more.<sup>21</sup>

In practice, of course, a fully individuated VSL is not feasible, for two different reasons. First, government lacks the information that would permit the calculation. Regulators do not know how much each person would be willing to pay to reduce each statistical risk; generalizations through the use of categories are therefore inevitable. Second, many regulatory programs involve collective goods and protect many people at once. A clean air program, for example, cannot easily ensure that some people in a geographical region are exposed to no more than 10 parts per billion (ppb) of some pollutant, while others in the same region are subjected to 50 ppb. Because collective goods are typically involved in regulation, the problem is pervasive. When government is providing a regulatory good to many people at once, feasibility requires that it use a single VSL, not a range of VSLs.

Notwithstanding issues of feasibility, an understanding of the reasons for individuating VSL is important for two reasons. The first involves conceptual clarity. The theory behind the use of VSL and WTP remains poorly understood. In brief, VSL, as currently understood, is a product of agency judgments about people's WTP to reduce or eliminate certain risks. When a particular VSL is used (say, \$6 million), it is because the agency estimates that people are willing to pay a certain amount to reduce statistical risks of a specified magnitude. This point should be enough to show that whatever terminology agencies use, there is no "value of a statistical life"; there are only values for the reduction of statistical risks.<sup>22</sup> Once regulators identify the real question as the identification of those values, they will find it difficult to defend a unitary VSL, simply because there is no such thing. An appreciation of the case for individuation will clarify the theory—both its rationale and its limitations, empirical and ethical. I emphasize that the theory is undergirded by considerations

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21. See VISCUSI, *supra* note 9, at 31–32 (discussing the value of life issue in economic terms).

22. See, e.g., National Emission Standards for Hazardous Air Pollutants for Industrial/Commercial/Institutional Boilers and Process Heaters, 68 Fed. Reg. 1660, 1695 (proposed Jan. 13, 2003) (to be codified at 40 C.F.R. pt. 63) (noting that the value of a statistical life is "the value to an individual of a reduction in mortality risk").

of both autonomy and welfare—and that those considerations also show when the use of WTP to calculate VSL is misguided.

The second reason involves the possibility of moving a long way toward greater individuation, even if full individuation is not feasible. With respect to the reduction of cancer risks, for example, there is reason to believe that people are willing to pay an extra amount; hence VSL, based on WTP, is significantly higher than studies of risks not involving cancer suggest.<sup>23</sup> For this reason, the government's current valuation of cancer risks is probably too low, resulting in widespread underprotection of the public. Similarly, there is reason to think that VSL should be higher for mortality risks from airplanes than for statistically identical risks on the highways.<sup>24</sup> More generally, different agencies, dealing with qualitatively different risks, might well use different VSLs, simply because market evidence is likely to show just those differences.<sup>25</sup> Full individuation is not feasible, but greater individuation would be quite easy. The result would be different judgments from agencies, simply because new VSLs—some higher, others lower—would produce different conclusions about when regulation is justified.

A far more troublesome problem, to which I will devote considerable attention, involves disparities along demographic lines. For now, notice a simple factual point: WTP is dependent on ability to pay, and those with little income and wealth will show little WTP.<sup>26</sup> It follows that the VSL of poor people, when calculated based on WTP, will be lower than the VSL of rich people, simply because poor people are poorer. Suppose that the \$6.1 million figure used by the EPA represents the average WTP of a population-wide sample. When risks are faced disproportionately by wealthy people, VSL,

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23. See *supra* note 11 and accompanying text.

24. See Carlsson, *supra* note 12, at 148 (finding that individuals' WTP to reduce the risk of airline deaths is more than double their WTP to reduce the risk of taxi deaths).

25. As I explain in Part I.A, different agencies now use different numbers for VSL, but these differences seem random and do not stem from a careful inquiry into the questions that I am emphasizing here.

26. If the tax laws ensured the right level of redistribution, there would be little reason to use regulatory policy to promote redistributive goals. Regulation would be based on WTP, and tax laws would ensure such redistribution. Hence the analysis of VSL and WTP would be different with an optimal tax policy from what it must be without such a policy. If tax policy were optimal, a highly variable WTP would be appropriate and there would be no need to take account of distributional concerns. The discussion below is based on the assumption that more redistribution is desirable and that regulatory policy can sometimes help to promote that goal, though less effectively than an optimal tax.

based on actual WTP, should be higher than \$6.1 million—just as it should be lower when the regulated risks are faced disproportionately by poor people.<sup>27</sup> It is inevitable that people in poor nations will have a lower VSL than people in rich nations, a point with implications for valuation of the harms from global warming.<sup>28</sup> Similarly, people in poor areas will have a lower VSL than those in wealthy areas, a point with implications for valuation of a variety of risks in the domestic setting. If variations across risks and persons are significant, the question of individuation should be a central part of the second generation of cost-benefit analysis—a step beyond the first-generation debate about whether to do such analysis at all, and a step toward doing such analysis in a way that is more refined and more closely attuned to the consequences of regulations in terms of choice, welfare, and distributional equity.

Of course it is offensive and wrong to suggest that in principle, poor people are “worth less” than rich people. If poor people are subject to a risk of 1/10,000, they do not have less of a claim to public attention than wealthy people who are subject to the same risk; in fact they may have a greater claim, if only because they lack the resources to reduce that risk on their own. But the topic here is regulation rather than subsidy, and the two ought not to be confused. In principle, government should not force people to buy protection against statistical risks at a price that seems excessive to them.<sup>29</sup> At least as a general rule, people should not be required to pay \$70 to reduce a risk of 1/100,000 if they are willing to pay no more than \$50.

If a uniform VSL would benefit the poor, there is a strong argument for a uniform VSL. But regulation based on a uniform VSL may or may not produce a more equitable distribution of income; in fact any redistribution may be perverse, and a single VSL might not promote equality at all.<sup>30</sup> And if poor people are forced to pay an amount for risk reduction that exceeds their WTP, desirable redistribution will hardly result; forced exchanges, on terms that people would voluntarily reject, are not a good way of redistributing

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27. With this qualification: If poor people would be disproportionately benefited by assigning them a higher VSL, then there is a good argument for assigning them a higher VSL. I explore this issue in Part III.B.

28. *See infra* Part IV.

29. I offer a number of qualifications below. *See infra* Part III.B.

30. If wealthy people are the principal beneficiaries of a particular regulation chosen on the basis of a uniform VSL, and if the public as a whole pays for it, then any redistribution will benefit the wealthy, not the poor.

wealth to the disadvantaged. (Requiring poor people to buy Volvos is not the most sensible means of assisting them.) On the other hand, it is possible that some regulatory programs, based on a uniform VSL, will help those in need, if their beneficiaries receive risk reduction for which they pay little or nothing—an issue to which I will devote considerable attention.

A larger lesson follows from this discussion. For purposes of law and politics, there is no sensible answer to the abstract question about the correct monetary value of human life. Any judgment about the appropriate VSL, and about individuation, must be heavily pragmatic; it must rest on the consequences of one or another choice. Whether government should use a higher or lower VSL across demographic lines cannot be answered simply. An important implication involves the assessment of VSL across nations. A poor nation would do well to adopt a lower VSL than a wealthy nation; for China or India, it would be disastrous to use a VSL equivalent to that of the United States or Canada. But this point should not be taken to support the ludicrous proposition that donor institutions, both public and private, should value risk reduction in a wealthy nation above equivalent risk reduction in a poor nation.

This Article is organized as follows. Part I clarifies the theory behind the valuation of statistical lives. The major point is that regulators do not really use a VSL; instead they use a mean WTP to eliminate a statistical risk. For example, agencies might say that they are using a VSL of \$6 million, but when they do so, they are relying on evidence more or less establishing that the average person is paid \$600 to face a risk of 1/10,000. The case for using this evidence depends on considerations of both autonomy and welfare. Part II, in some ways the heart of the Article, explores the need for individuation across both risks and persons. Part III offers a more ambitious discussion of the uses and limits of WTP in regulatory policy. It distinguishes between easy and hard cases for using WTP to calculate VSL. The central claim in Part III is that the argument for using WTP is strongest when the beneficiaries of regulation must pay all of its cost—though even in that event, the argument is subject to important qualifications, above all involving bounded rationality. The argument for using WTP is weaker when the beneficiaries of regulation pay only a fraction of that cost. When this is so, some people will benefit from regulation even if it is inefficient in economic terms. I discuss the implications of this point for a uniform or fully individuated VSL. Part IV turns to global regulation and the question

of cross-national differences in VSL. My conclusion is that while third-party donors should help those people who need help most, without reference to lower VSLs in poor countries, governments in wealthy nations should use a higher VSL than governments in poor ones.

### I. WTP: THEORY AND PRACTICE

I begin with an explanation of existing agency practice in calculating VSL and of the theory that underlies it. As discussed below, agencies calculate VSL on the basis of market evidence of WTP. Agencies are not really able to identify a “value of a statistical life”; instead they take advantage of information about how much people are willing to pay for facing statistical risks. I suggest that considerations of both welfare and autonomy make it reasonable for agencies to consult WTP. Unfortunately, many questions might be raised about the numbers that agencies now use.

#### A. Agency Practice

It has now become standard for regulatory agencies to assign monetary values to human lives. Consider the following table, which captures several examples of agency practices from 1996 through 2003:

TABLE 1: AGENCY VALUES OF LIFE, 1996–2003

Agency	Regulation and Date	VSL (in US\$)
Department of Transportation/Federal Motor Carrier Safety Administration	Safety Requirements for Operators of Small Passenger-Carrying Commercial Motor Vehicles Used in Interstate Commerce (Aug. 12, 2003) <sup>31</sup>	3 million
Department of Health & Human Services/FDA	Food Labeling: Trans Fatty Acids in Nutrition Labeling, Nutrient Content Claims, and Health Claims (July 11, 2003) <sup>32</sup>	6.5 million
Department of Agriculture/Food Safety and Inspection Service	Control of <i>Listeria Monocytogenes</i> in Ready-to-Eat Meat and Poultry Products (June 6, 2003) <sup>33</sup>	4.8 million
Department of Health & Human Services/FDA	Labeling Requirements for Systemic Antibacterial Drug Products Intended for Human Use (Feb. 6, 2003) <sup>34</sup>	5 million

31. 68 Fed. Reg. 47,860, 47,869 (Aug. 12, 2003) (codified at 49 C.F.R. pts. 390, 398).

32. 68 Fed. Reg. 41,434, 41,490 (July 11, 2003) (codified at 21 C.F.R. pt. 101).

33. 68 Fed. Reg. 34,208, 34,222 (June 6, 2003) (codified at 9 C.F.R. pt. 430).

34. 68 Fed. Reg. 6062, 6076 (Feb. 6, 2003) (codified at 21 C.F.R. pt. 201).

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Office of Management and Budget	Draft 2003 Report to Congress on the Costs and Benefits of Federal Regulations (Feb. 3, 2003) <sup>35</sup>	5 million
EPA	Control of Emissions from Nonroad Large Spark-Ignition Engines, and Recreational Engines (Marine and Land-Based) (Nov. 8, 2002) <sup>36</sup>	6 million
EPA	National Primary Drinking Water Regulations; Arsenic and Clarifications to Compliance and New Source Contaminants Monitoring (Jan. 22, 2001) <sup>37</sup>	6.1 million
EPA	Control of Air Pollution from New Motor Vehicles: Heavy-Duty Engine and Vehicle Standards and Highway Diesel Fuel Sulfur Control Requirements (Jan. 18, 2001) <sup>38</sup>	6 million
EPA	Control of Air Pollution from New Motor Vehicles: Tier 2 Motor Vehicle Emissions Standards and Gasoline Sulfur Control Requirements (Feb. 10, 2000) <sup>39</sup>	5.9 million
EPA	Findings of Significant Contribution and Rulemaking on Section 126 Petitions for Purposes of Reducing Interstate Ozone Transport (Jan. 18, 2000) <sup>40</sup>	5.9 million
EPA	Final Standards for Hazardous Air Pollutants for Hazardous Waste Combustors (Sept. 30, 1999) <sup>41</sup>	5.6 million
EPA	National Primary Drinking Water Regulations: Disinfectants and Disinfection Byproducts (Dec. 16, 1998) <sup>42</sup>	5.6 million

35. 68 Fed. Reg. 5492, 5500 (proposed Feb. 3, 2003).

36. 67 Fed. Reg. 68,242, 68,327 (Nov. 8, 2002) (codified at 40 C.F.R. pts. 89-91, 94, 1048, 1051, 1065, and 1068).

37. 66 Fed. Reg. 6976, 7012 (Jan. 22, 2001) (codified at 40 C.F.R. pts. 9, 141, and 142).

38. 66 Fed. Reg. 5002, 5103 (Jan. 18, 2001) (codified at 40 C.F.R. pts. 69 and 80).

39. 65 Fed. Reg. 6698, 6784 (Feb. 10, 2000) (codified at 40 C.F.R. pts. 80, 85, and 86).

40. 65 Fed. Reg. 2674, 2721 (Jan. 18, 2000) (codified at 40 C.F.R. pts. 52, 97).

41. 64 Fed. Reg. 52,828, 53,020 (Sept. 30, 1999) (codified at 40 C.F.R. pts. 60, et al.).

42. 63 Fed. Reg. 69,390, 69,440-41 (Dec. 16, 1998) (codified at 40 C.F.R. pts. 141 and 142).

Department of Transportation/FAA	Financial Responsibility Requirements for Licensed Launch Activities (Aug. 26, 1998) <sup>43</sup>	3 million
Department of Health & Human Services/FDA	Quality Mammography Standards (Oct. 28, 1997) <sup>44</sup>	5 million
Department of Health & Human Services/FDA	Regulations Restricting the Sale and Distribution of Cigarettes and Smokeless Tobacco to Protect Children and Adolescents (Aug. 28, 1996) <sup>45</sup>	2.5 million
Department of Agriculture/Food Safety and Inspection Service	Pathogen Reduction; Hazard Analysis and Critical Control Point (HACCP) Systems (July 25, 1996) <sup>46</sup>	1.6 million
Department of Transportation/FAA	Aircraft Flight Simulator Use in Pilot Training, Testing and Checking and at Training Centers (July 2, 1996) <sup>47</sup>	2.7 million
Consumer Product Safety Commission	Requirements for Labeling of Retail Containers of Charcoal (May 3, 1996) <sup>48</sup>	5 million
Consumer Product Safety Commission	Large Multiple-Tube Fireworks Devices (May 3, 1996) <sup>49</sup>	4.5–8 million

These numbers show substantial variations, though less so than even ten years ago.<sup>50</sup> The variations appear not to have any rationale behind them; agencies with higher or lower numbers have not explained their choices (and this is a significant problem). But the most fundamental question is how agencies generate monetary amounts of this kind. Agencies rely on two kinds of evidence. The first and most important involves real-world markets, producing

43. 63 Fed. Reg. 45,592, 45,604 (Aug. 26, 1998) (codified at 14 C.F.R. pt. 440).

44. 62 Fed. Reg. 55,852, 55,964 (Oct. 28, 1997) (codified at 21 C.F.R. pts. 16, 900).

45. 61 Fed. Reg. 44,396, 44,576 (Aug. 28, 1996) (codified at 21 C.F.R. pts. 803, 807, and 820).

46. 61 Fed. Reg. 38,806, 38,958 (July 25, 1996) (codified at 9 C.F.R. pts. 310, 327, 381, 416, and 417).

47. 61 Fed. Reg. 34,508, 34,546 (July 2, 1996) (codified at 14 C.F.R. pt. 1).

48. 61 Fed. Reg. 19,818, 19,825 (May 3, 1996) (codified at 16 C.F.R. pt. 1500).

49. 61 Fed. Reg. 13,084, 13,094 (Mar. 26, 1996) (codified at 16 C.F.R. pts. 1500, 1507).

50. See Adler & Posner, *supra* note 5, at 1146 (showing an ever larger disparity in VSL numbers used by agencies between 1988 and 1997).

evidence of compensation levels for actual risks.<sup>51</sup> In the workplace and in the market for consumer goods, additional safety has a price; market evidence is investigated to identify that price.<sup>52</sup> The second kind of evidence comes from contingent valuation studies, which ask people how much they are willing to pay to reduce statistical risks.<sup>53</sup> The EPA's \$6.1 million figure, for example, is a product of studies of actual workplace risks; such studies attempt to determine how much workers are paid to assume mortality hazards.<sup>54</sup> The relevant risks usually are in the general range of 1/10,000 to 1/100,000.<sup>55</sup> The calculation of VSL is a product of simple arithmetic. Suppose that workers must be paid \$600, on average, to assume a risk of 1/10,000. If so, the VSL would be said to be \$6 million.

For some of the two dozen labor market studies on which agencies currently rely,<sup>56</sup> consider the following table:<sup>57</sup>

TABLE 2: LABOR MARKET STUDIES ON THE VALUE OF LIFE

<i>Study</i>	<i>VSL (in US\$)</i>
Kniesner and Leith (1991)	.7 million
Smith and Gilbert (1984)	.8 million
Dillingham (1985)	1.1 million
Marin and Psacharopoulos (1982)	3.4 million
V.K. Smith (1976)	5.7 million
Viscusi (1981)	7.9 million
Leigh and Folsom (1984)	11.7 million
Leigh (1987)	12.6 million
Garen (1988)	16.3 million

51. See VISCUSI, *supra* note 9, at 35 (explaining how labor markets compensate workers for taking on risk).

52. See generally Viscusi & Aldy, *supra* note 10 (providing a valuable and comprehensive overview of how market evidence is used to set prices).

53. See, e.g., Hammitt & Liu, *supra* note 11, at 74 (using contingent valuation in a study of WTP in the context of cancer and other degenerative diseases).

54. Cass R. Sunstein, *The Arithmetic of Arsenic*, 90 GEO. L.J. 2255, 2274 (2002); VISCUSI, *supra* note 9 (discussing WTP studies and how agencies use them to calculate VSL).

55. See, e.g., W. Kip Viscusi, *The Value of Life: Estimates with Risks by Occupation and Industry*, 42 ECON. INQUIRY 29, 33 (2004) (showing fatality risks ranging from about 1/100,000 to 45/100,000).

56. See Richard W. Parker, *Grading the Government*, 70 U. CHI. L. REV. 1345, 1485-86 (2003) (providing an accessible outline of labor market studies).

57. ENVTL. PROT. AGENCY, GUIDELINES FOR PREPARING ECONOMIC ANALYSES 89 (2000).

A large advantage of labor market studies of this kind is that they avoid the lively disputes over the use of “willingness to pay” or “willingness to accept” (WTA) in regulatory policy.<sup>58</sup> In many contexts, in both experiments and the real world, people demand more to give up a good than they are willing to pay to obtain it in the first instance—a disparity that significantly complicates efforts to assign monetary values to regulatory benefits, including mortality and morbidity.<sup>59</sup> If people are willing to pay \$25 to eliminate an existing risk of 1/100,000, but demand \$100 to incur a new risk of 1/100,000, then it is difficult to know how to proceed for purposes of monetary valuation of risks. Should agencies use \$25, \$100, or some intermediate figure? Fortunately, this problem dissipates in the context of labor market studies. If workers who face a risk of 1/10,000 are paid \$600 more for doing so, and if workers who refuse to face such a risk are paid \$600 less, then it is irrelevant whether agencies speak in terms of WTP or WTA.

#### *B. Of Welfare and Autonomy*

Why do regulators care about market valuations of statistical risks? There are two possible answers. The first and more conventional involves welfare. The second and perhaps more interesting involves autonomy.

In economic terms, these valuations provide a clue to the welfare consequences, for individuals, of one or another outcome. If people are willing to pay \$60, but no more, to eliminate a risk of 1/100,000, then it can be reasonably assumed that their welfare is increased by asking them to pay that amount—and that their welfare is decreased by asking them to pay more. There are many demands on people's budgets, and if they prefer not to spend more than \$60 to eliminate a risk of 1/100,000, it may be because they would like to use their money for food, shelter, recreation, education, or any number of other goods. With respect to mortality risks, it is possible that people

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58. See generally Russell Korobkin, *The Endowment Effect and Legal Analysis*, 97 NW. U. L. REV. 1227 (2003) (explaining the so-called “endowment effect,” by which individuals often demand more to relinquish an item (WTA) than they would pay to obtain that same item (WTP)).

59. See *id.* at 1228 (“[P]eople will often demand a higher price to sell a good that they possess than they would pay for the same good if they did not possess it at present.” (footnote omitted)); Cass R. Sunstein, *Endogenous Preferences*, *Environmental Law*, 22 J. LEGAL STUD. 217, 226–27 (1993) (“The range of the disparity appears to vary from slight amounts to a ratio of more than four to one, with WTA usually doubling WTP.”).

are sometimes inadequately informed, and there might be reason to override their judgments. But so long as information is available, the welfare argument is straightforward.<sup>60</sup>

Perhaps regulatory policy should not be based on welfare; perhaps it is unclear what “welfare” really means, and WTP might be defended instead on the ground of personal autonomy.<sup>61</sup> On this view, people should be sovereign over their own lives, and government should respect personal choices about how to use limited resources (again so long as those choices are informed). When people decline to devote more than \$60 to the elimination of a 1/100,000 risk, it is because they would prefer to spend the money in a way that seems to them more desirable. If regulators do not use people’s actual judgments, then they are insulting their dignity. The use of WTP therefore can claim a simultaneous defense from both utilitarian and deontological accounts.

### C. *Questions and Doubts*

Nonetheless, some questions might be raised about the use of the relevant studies by the EPA and other agencies.<sup>62</sup> Most obviously, the studies show significant variety in the crucial numbers, ranging from \$16.3 million in 1988 to \$.7 million in 1991. The EPA has adopted the \$6.1 million figure on the ground that it represents the median in the relevant studies.<sup>63</sup> But there is a risk of arbitrariness in fastening on that median figure, particularly if there is no reason to believe that the relevant study is the most accurate. In fact a more general look at the VSL data produces further puzzles and wider ranges. Some studies find no compensating differentials at all, indicating a VSL of zero<sup>64</sup>—implausibly low, to say the least, for purposes of policy. Others find that nonunionized workers receive *negative* compensating differentials for risk—that is, they appear to be paid less because they

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60. I deal with some complexities in Part III.

61. See RONALD DWORKIN, *SOVEREIGN VIRTUE: THE THEORY AND PRACTICE OF EQUALITY* 122 (2000) (arguing that liberty “is essential to any process in which equality is defined and secured”).

62. For several such questions, see Robert H. Frank & Cass R. Sunstein, *Cost-Benefit Analysis and Relative Position*, 68 U. CHI. L. REV. 323, 323–28 (2001), and Parker, *supra* note 56, at 1348–57.

63. See *supra* note 54 and accompanying text.

64. See Peter Dorman & Paul Hagstrom, *Wage Compensation for Dangerous Work Revisited*, 52 INDUS. & LAB. REL. REV. 116, 133 (1998) (finding “statistically significant positive compensation” for only a few categories of workers).

face mortality risks.<sup>65</sup> Another study finds that African Americans receive no significant compensating wage differential and hence that their particular VSL is zero.<sup>66</sup> On the other hand, some studies find VSLs actually above the VSLs presented in Table 1; consider the finding that for people who choose jobs with low level risks, the VSL is as much as \$22 million.<sup>67</sup>

The most recent metastudy, far more comprehensive than the EPA's own analysis, finds that most studies produce VSLs ranging from \$3.8 million to \$9 million.<sup>68</sup> The range is fairly compressed, in a way that disciplines agency decisions; for many regulations, the "bottom line" of the cost-benefit assessment will not be affected by a choice of \$3.8 million or \$9 million. But that range still leaves significant room for discretion, in a way that would have significant implications for policy and law. Consider the fact that the monetized value of a program that saves two hundred lives would range from \$760 million to \$1.8 billion; note also that the EPA's highly publicized arsenic regulation would easily fail cost-benefit analysis with a \$3.8 million VSL but easily pass with a \$9 million VSL.<sup>69</sup> The simple point is that the variety of the outcomes raises questions about the reliability of any particular figure.

In addition, most of the studies on which the EPA relies are based on data from the 1970s.<sup>70</sup> Since that time, there has been significant growth in national income.<sup>71</sup> This change suggests that any VSL derived from 1970s data is too low. Of course people with more money are expected to be willing to pay more, other things being equal, to reduce statistical risks. One study finds that at the beginning of the twentieth century, VSL was about \$150,000 in current dollars—less than one-twentieth of the corresponding amount a century later.<sup>72</sup> On reasonable assumptions, the EPA's use of 1970s data has

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65. Viscusi & Aldy, *supra* note 10, at 44.

66. Leeth & Ruser, *supra* note 19, at 270.

67. Viscusi & Aldy, *supra* note 10, at 23.

68. *Id.* at 18.

69. See Sunstein, *supra* note 54, at 2274–76 (discussing the EPA's use of a \$6.1 million VSL in evaluating the arsenic regulation). The regulation was projected to cost about \$200 million, and its monetized benefits, with a \$6.1 million VSL, were around \$190 million. *Id.* at 2275. It should be easy to see that a \$3.8 million VSL would make the regulation impossible to defend—and a \$9 million VSL would make it impossible to challenge.

70. *Id.* at 2274.

71. *Id.* at 2284–85.

72. Viscusi & Aldy, *supra* note 10, at 22.

produced a significant undervaluation of the monetary value of the lives at stake; the \$6.1 million figure reflects no adjustment to account for changes in national real income growth.<sup>73</sup> In principle, the failure to undertake an adjustment is a serious mistake. The actual mean WTP might be substantially higher.<sup>74</sup>

Even more fundamentally, the relevant numbers deserve respect only if they do not result from bounded rationality or an absence of information on the part of the people whose choices generate them. Suppose, for example, that workers do not know the risks that they face or that their decisions are products of the availability heuristic or optimistic bias.<sup>75</sup> In either case, regulators should not use, for purposes of policy, a finding that workers are paid \$60 to run a risk of 1/100,000; by hypothesis, that number does not reflect a rational tradeoff by informed workers. I return to these points below.<sup>76</sup> Current practice is based on an assumption, not that all or even most workers make informed choices, but that market processes ensure the right “price” for various degrees of safety.<sup>77</sup> Compare pricing for soap, cereals, and telephones: most consumers do not have full information and use heuristics that lead them astray, but market competition produces a sensible structure of prices, at least most of the time.

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73. The EPA has updated the relevant numbers for inflation, but it has not otherwise made adjustments. Sunstein, *supra* note 54, at 2284.

74. See Dora L. Costa & Matthew E. Kahn, *The Rising Price of Nonmarket Goods*, 93 AM. ECON. REV. PAPERS & PROC. 227, 229 tbl.1 (2003) (suggesting a likely current value of \$12 million); Viscusi, *supra* note 16, at 252 tbl.5 (finding values as high as \$15.1 million for white males). In the context of arsenic regulation, the EPA also noted in its sensitivity analysis that the appropriate adjustment would increase the VSL from \$6.1 million to \$6.7 million. National Primary Drinking Water Regulations; Arsenic and Clarifications to Compliance and New Source Contaminants Monitoring, 66 Fed. Reg. 6976, 7012 (Jan. 22, 2001) (codified at 40 C.F.R. pts. 9, 141, and 142). Recent evidence suggests that the current VSL is \$4.7 million for the entire population, \$7 million for blue-collar males, and \$8.5 million for blue-collar females. Viscusi, *supra* note 55, at 39.

75. The availability heuristic suggests that people will overestimate risks when an event is readily “available” to people’s minds, and underestimate risks when no such event is available. Timur Kuran & Cass R. Sunstein, *Availability Cascades and Risk Regulation*, 51 STAN. L. REV. 683, 685 (1999). Optimistic bias suggests that people will be excessively optimistic about risks that they themselves face. Cass R. Sunstein, *Hazardous Heuristics*, 70 U. CHI. L. REV. 751, 772 (2003).

76. See *infra* Part III.A.2.

77. See VISCUSI, *supra* note 9.

*D. The Value of Statistical Risks, Not the Value of Statistical Lives*

Suppose that the relevant problems can be solved and that regulators can identify a number, call it \$6 million, that really represents people's valuations. It should be clear that even if this were so, it would be grossly misleading to offer the following suggestion: *The value of a statistical life is \$6 million.* It would be much more accurate to say that for risks of 1/10,000, the median WTP in the relevant population is \$600—or that for risks of 1/100,000, the median WTP is \$60. If true, these statements would, on assumptions later explored, be extremely helpful for purposes of policy. But even at first glance, it is clear that these numbers need not be taken to support a VSL that is independent of probability.<sup>78</sup> Suppose that people would be willing to pay \$60 to reduce a risk of 1/100,000. From this it does not automatically follow that people would be willing to pay \$6 to eliminate a risk of 1/1,000,000, or \$6,000 to reduce a risk of 1/1,000, or \$60,000 to reduce a risk of 1/100. It is plausible to think that people's WTP to reduce statistical risks is nonlinear.<sup>79</sup> As the probability approaches 100 percent, people become willing to pay an amount for risk reduction that rises nonlinearly to 100 percent of their wealth; as the risk approaches zero, WTP nonlinearly approaches nothing. For a risk of 1/1,000,000, for example, many reasonable people would be unwilling to pay anything, treating that risk as inconsequential.

Hence the claim that VSL is \$6 million is merely a shorthand way of saying that people are willing to pay from \$600 to \$60 to eliminate risks of 1/10,000 to 1/100,000. Because this is the range for risks with which most agencies deal, the relevant data are highly informative. For current purposes, this point is the crucial one.

## II. INDIVIDUATION

My basic claim is that VSL will inevitably vary across both risks and persons. If people's WTP is higher to avoid cancer risks than risks of unanticipated, sudden deaths, then the use of a VSL, drawn from studies of the latter risks, will provide insufficient protection of the exposed population. If people in different occupations are paid

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78. See RICHARD POSNER, CATASTROPHE: RISK AND RESPONSE 166 (2004) ("[T]here is no reason to think that the relation between the risk of death and the perceived cost of the risk is linear.").

79. *Id.*

different amounts to incur a risk, then use of a uniform VSL will not track actual behavior, which is what it is supposed to do.<sup>80</sup> If wealthy people show a higher WTP than poor people, then a uniform WTP based on a population-wide median will ensure insufficient protection of wealthy people and excessive protection of poor people in a way that might well prove harmful to both groups.<sup>81</sup> And if the use of WTP is justified on grounds of welfare and autonomy, then a more individuated approach is justified on those same grounds.

This Part begins by considering differences among risks and then explores differences among persons. It explains and endorses the claim that in theory, full individuation, giving all people the risk reduction for which they are willing to pay, is required by the prevailing theory. From this point, it emphasizes the problem with full individuation, which is that it is not feasible. But an intermediate approach, moving in that direction, would make a great deal of sense. The Part concludes with a discussion of the implications for administrative law.

#### A. Risks

I have emphasized that the data that underlie the \$6.1 million VSL used by the EPA come from risks of accidents in the workplace—and that even if these data could be generalized, they would not justify a probability-independent VSL. But there is a point of greater practical importance. A 1/100,000 risk of dying in a workplace accident might well produce a different WTP from a 1/100,000 risk of dying of cancer from air pollution, which might in turn be different from a 1/100,000 risk of dying in an airplane as a result of a terrorist attack or a 1/100,000 risk of dying as a result of a defective snowmobile. The very theory that lies behind the government's current use of VSL justifies a simple conclusion: *VSL should be risk-specific; it should not be the same across statistically equivalent risks.* The use of a single number almost certainly produces significant blunders and incorrect decisions about the appropriate amount of regulatory protection.

1. *Data.* To test these issues in a highly preliminary way, I conducted a small contingent valuation study. Eighty-four University

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80. Viscusi, *supra* note 55, at 33, 39–41.

81. On the “might well,” see *infra* Part III.B.

of Chicago law students were asked about their WTP to eliminate each of five risks of 1/100,000. The simplest of these risks involved dying from an automobile accident as a result of a defective brake. The four other risks might be expected to occasion greater concern; they involved deaths from lung cancer, AIDS, Alzheimer's disease, and airplane crashes resulting from terrorist attacks. The 1/100,000 risk of dying in an automobile accident produced a mean WTP of \$156, whereas the four other accidents produced significantly higher values (ranging from \$184 for the AIDS risk to \$193 for Alzheimer's disease). In addition, there was substantial heterogeneity across individuals. For each of the questions, about ten respondents were willing to pay nothing to eliminate the 1/100,000 risk, producing a VSL of zero. At the opposite end of the spectrum, about fifteen people were willing to pay at least \$500 to eliminate each of the 1/100,000 risks, producing a VSL of \$50 million. This informal study suggests that even within a relatively homogenous group (law students), people do not treat statistically identical risks in the same way, and indeed there are differences across persons as well as across risks.

With respect to the data on which agencies generally rely, notice initially that the very category of "workplace risks" conceals relevant differences. The American economy contains a wide range of occupations and industries, and a uniform VSL should not be expected to emerge from each of them. Indeed, a recent study finds significant differences across both occupations and industries,<sup>82</sup> with blue-collar workers showing a higher VSL than others.<sup>83</sup> It is inevitable that a wide range of values would emerge from studies looking separately at machine operators, executives, sales associates, dental technicians, equipment cleaners, security guards, and secretaries<sup>84</sup>—and diverse values undoubtedly could be found within each category.

In addition, many risks controlled by the EPA are qualitatively different from the workplace risks that the EPA has used to generate its VSL. Two differences are particularly important. First, the workplace studies do not involve cancer, and cancer risks are often involved in environmental decisions. There is considerable evidence

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82. Viscusi, *supra* note 55, at 39–41.

83. *Id.*

84. *See id.* at 33 (containing data clearly indicating that separate numbers for different occupation groups would emerge).

that the risks associated with cancer produce a higher WTP than other kinds of risk.<sup>85</sup> For example, Professors Hammitt and Liu find that in Taiwan, WTP to eliminate a cancer risk is about one-third higher than WTP to avoid a risk of a similar, chronic degenerative disease.<sup>86</sup> Some contingent valuation studies suggest that people are willing to pay twice as much to prevent a cancer death as an instantaneous death.<sup>87</sup> People seem to have a special fear of cancer, and they seem to be willing to pay more to prevent a cancer death than a sudden, unanticipated death, or a death from heart disease.<sup>88</sup> The “cancer premium” might be produced by the “dread” nature of cancer; it seems well established that dreaded risks produce special social concern, holding the statistical risk constant.<sup>89</sup>

To be sure, existing evidence on this count is not unambiguous. One study of occupational exposures does not find a significantly higher VSL for cancer risks.<sup>90</sup> But that study assumes that occupational cancers account for 10 to 20 percent of all cancer deaths—an amount that is almost certainly too high. If occupational exposures account for 5 percent of all cancers—a far more realistic number—then the VSL for cancer risks may be as high as \$12 million, about double the amount that the EPA now uses. The current findings conflict;<sup>91</sup> but in principle, the VSL figures should be risk-specific, and existing evidence generally supports the view that cancer risks produce an unusually high VSL.

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85. Richard L. Revesz, *Environmental Regulation, Cost-Benefit Analysis, and the Discounting of Human Lives*, 99 COLUM. L. REV. 941, 972–74 (1999); Hammitt & Liu, *supra* note 11, at 74.

86. *Id.* at 84.

87. *Id.* at 81.

88. See George Tolley et al., *State-of-the-Art Health Values*, in VALUING HEALTH FOR POLICY 323, 339–40 (George Tolley et al. eds., 1994) (arguing that the value of avoiding a mortality risk preceded by morbidity includes the value of avoiding an instantaneous death plus the value of avoiding the preceding years afflicted with the particular condition).

89. See Revesz, *supra* note 85, at 972–74 (discussing “the dread aspects of carcinogenic deaths” and their impact on WTP studies). See generally PAUL SLOVIC, *THE PERCEPTION OF RISK* (2000) (exploring how risk perception affects individual behavior).

90. See Viscusi & Aldy, *supra* note 10, at 57 (finding that estimates of values for cancer mortality and accidental death were similar); see also Wesley A. Magat et al., *A Reference Lottery Metric for Valuing Health*, 42 MGMT. SCI. 1118, 1129 (1996) (finding no difference between valuations of cancer deaths and auto accident deaths).

91. See Viscusi & Aldy, *supra* note 10, at 57 (contrasting the United Kingdom Health and Safety Executive’s use of a higher VSL for cancer deaths with the recommendation of the EPA’s SAB not to make any “dread” modification to VSL for certain risks).

The second difference between workplace risks and the risks that concern the EPA is that the latter risks seem peculiarly involuntary and uncontrollable.<sup>92</sup> Unlike the risks of workplace accidents, pollution risks are not assumed voluntarily in return for compensation.<sup>93</sup> A great deal of literature suggests that involuntary, dread, uncontrollable, and potentially catastrophic risks produce unusually high levels of public concern.<sup>94</sup> If so, the numbers that derive from workplace accidents will substantially understate WTP for regulatory benefits provided by the EPA and many other agencies.<sup>95</sup>

The implications of risk-specific VSL go well beyond the distinction between workplace accidents and environmental risks. For example, people appear to be willing to pay far more to produce safety in the air than on the highways;<sup>96</sup> it follows that VSL should be higher for the FAA than for the National Highway Traffic Safety Administration. Oddly, the former agency has an unusually low rather than an unusually high VSL.<sup>97</sup> Some diseases would produce a higher VSL than others. A 1/100,000 risk of death from Alzheimer's disease, for example, would almost certainly produce a higher VSL

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92. See, e.g., ACKERMAN & HEINZERLING, *supra* note 9, at 147 (arguing that environmental risks are involuntary because they are "not allocated, even in theory, according to market transactions"); Sunstein, *supra* note 54, at 2285 ("The risk of cancer from drinking water is qualitatively different from the workplace risks that the EPA used to generate its VSL. The risks from drinking water seem peculiarly involuntary and uncontrollable, and a great deal of literature suggests that involuntary and uncontrollable risks produce individual concern.").

93. Of course it is possible to question the idea that workplace risks are assumed voluntarily and in return for compensation. For example, many workers probably do not know the risks that they face. The distinction that I am drawing here is one of kind rather than degree. See Cass R. Sunstein, *Bad Deaths*, 14 J. RISK & UNCERTAINTY 259, 272 (1997) (proposing that low-wage workers involuntarily assume risks because they lack information).

94. See, e.g., Paul Slovic, *Perception of Risk*, 236 SCIENCE 280, 282-83 (1987).

95. See, e.g., Sunstein, *supra* note 54, at 2285 ("As compared to workplace risks, there can be little doubt that the risk of arsenic from drinking water is worse along the relevant dimensions. For this reason, it makes sense to think that people would be willing to pay a premium to avoid the risks associated with arsenic."). See generally ACKERMAN & HEINZERLING, *supra* note 9.

96. See Carlsson et al., *supra* note 12, at 159 (finding that people's WTP to reduce the risk of flying is double their WTP to reduce the risk of traveling by taxi, because the fear of flying produces particular mental suffering).

97. See *supra* Table 1 (listing the VSL for the FAA as \$2.7 to \$3 million depending on the regulation); OFFICE OF REGULATORY ANALYSIS AND EVALUATION, NAT'L HIGHWAY TRAFFIC SAFETY ADMIN., NPRM ON TIRE PRESSURE MONITORING SYSTEM FMVSS NO. 138, available at [http://www.nhtsa.dot.gov/cars/rules/rulings/TPMS\\_FMVSS\\_No138/index.html#Contents](http://www.nhtsa.dot.gov/cars/rules/rulings/TPMS_FMVSS_No138/index.html#Contents) (Sept. 2004) (documenting the cost-benefit analysis of a safety regulation using a VSL range from \$3.5 to \$5.5 million).

than a 1/100,000 risk of death from a heart attack; a 1/50,000 risk of an AIDS death would not produce the same VSL as a 1/50,000 risk of death from a defective brake system on an automobile; most people would pay more to reduce a risk of dying from slow-acting strokes than from strokes that kill outright. There should be a distinctive, population-wide median VSL for mortality risks of airplane accidents, of cancer from air pollution, of motor vehicle accidents, of defective toys, of cancer from water pollution.

In fact studies that have been done for seatbelt use, automobile safety, home fire detectors, and more find a wide variety of numbers, producing a VSL ranging from \$770,000 (smoke detectors, based on data from the 1970s) to \$9.9 million (fatality risks associated with safety belts and motorcycle helmets).<sup>98</sup> And within each of these categories of risk, further distinctions would undoubtedly emerge. All cancer fatalities are not the same; informed people would surely make distinctions between those that involve long periods of suffering and those that do not. If agencies are really interested in basing VSL on WTP, then a uniform number, treating all statistically identical mortality risks as the same, is fatally obtuse.

2. *Practice.* The claim that VSL should vary by the type of risk is not entirely foreign to current regulatory policy. In the context of arsenic regulation, for example, the EPA was alert to some such variations.<sup>99</sup> Hence its own sensitivity analysis for arsenic suggested the need for an upward revision of 7 percent because of the involuntariness and uncontrollability of the risk.<sup>100</sup> With this revision, along with the revision for income growth, VSL would rise from \$6.1 million to \$7.2 million.<sup>101</sup> In fact there are reasons to suggest that this amount might be far too low. Dean Revesz suggests that “the value of avoiding a death from an involuntary, carcinogenic risk should be

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98. Viscusi & Aldy, *supra* note 10, at 25.

99. See National Primary Drinking Water Regulations; Arsenic and Clarifications to Compliance and New Source Contaminants Monitoring, 66 Fed. Reg. 6976, 7014 (Jan. 22, 2001) (codified at 40 C.F.R. pts. 9, 141, and 142) (demonstrating “the effects of incorporating a 7% increase for voluntariness and controllability,” based on a study indicating that “individuals may place a slightly higher [WTP] on risks where exposure is neither voluntary nor controllable by the individual”); see also Sunstein, *supra* note 54, at 2285 (arguing that the EPA’s “own sensitivity analysis suggests the need for an upwards revision of seven percent because of the involuntariness and uncontrollability of the risk”).

100. National Primary Drinking Water Regulations; Arsenic and Clarifications to Compliance and New Source Contaminants Monitoring, 66 Fed. Reg. at 7014.

101. *Id.*

estimated as four times as large as the value of avoiding an instantaneous workplace fatality.”<sup>102</sup> Under this approach, the VSL, in the context of arsenic, jumps from \$6.1 million to \$24.3 million. I am not arguing that \$24.3 million is the correct number; I am suggesting only that VSL, based on WTP, is almost certainly risk-specific.

3. *Qualifications.* Three qualifications are important. First, psychological studies showing heightened public concern<sup>103</sup> about particular risks may not translate into higher WTP. Social scientists might be able to show that certain qualitative factors make people especially concerned about certain risks, but it is an independent question whether and how much their WTP increases as a result. Fortunately, a number of studies of WTP at least suggest answers to that question, demonstrating that VSL should vary significantly across risk types.<sup>104</sup>

Second, there is no simple or rigid distinction between the involuntary/uncontrollable and the voluntary/controllable.<sup>105</sup> It is a mistake to believe that risks can be neatly separated into the two categories. Are the risks from air pollution in Los Angeles involuntarily incurred? The answer might seem to be affirmative, but people can choose whether to live in Los Angeles. Are the risks of airplane travel uncontrollable? Many people think so, but the decision to fly is itself under human control. Death from an asteroid seems to be a model case of involuntariness, at an opposite pole from hang gliding. But why? In deciding whether a risk is faced involuntarily or whether it is within personal control, the underlying issues seem to be whether those exposed to the risk are exposed knowingly and whether it is costly or otherwise difficult for people to avoid the risk.<sup>106</sup> When risks are approached in these terms, it is clear that some risks are worse than others, even if the probability of harm

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102. Revesz, *supra* note 85, at 982.

103. See SLOVIC, *supra* note 89, at 232–35 (discussing public concern about extremely minimal but highly publicized risks such as nuclear mishaps or genetic engineering).

104. For VSL calculations based on types of diseases and disease latency periods, see Hammitt & Liu, *supra* note 11, at 88. For a metanalysis, see generally Viscusi & Aldy, *supra* note 10.

105. Sunstein, *supra* note 54, at 2285; see Sunstein, *supra* note 93, at 272 (“[T]he question whether a risk is run voluntarily or not is often not a categorical one but instead a matter of degree, associated with information cost, risk-reduction cost, and the existence or not of accompanying benefits.”).

106. Sunstein, *supra* note 93, at 272.

is identical. This point is enough to suggest that VSL cannot be uniform across risks.

Third, it is possible that extreme aversion to certain risks reflects a form of bounded rationality<sup>107</sup>—and it is doubtful whether that extreme aversion should be allowed to play a role in regulatory policy. Suppose, for example, that people really are willing to pay twice as much to avoid a cancer risk as to avoid a sudden, unanticipated death. Must these numbers be decisive for purposes of policy, assuming that the contingent valuation study is reliable? They might not be *if* there is reason to believe that the WTP figures are not accurately measuring welfare. And is it even plausible to think that the “cancer premium” is so high that it actually doubles the cost of death? Is it reasonable to think that a death from cancer is actually *twice* as bad as a death that is sudden and unanticipated? To be sure, a degree of pain and suffering typically accompanies cancer, and that fact illustrates the obtuseness of using the same number for cancer risks as for risks of sudden, unanticipated deaths. But it is not easy to defend the set of (exotic) values that would lead to the conclusion that the relevant pain and suffering is as bad as death itself. If WTP does not accurately measure welfare in the case of cancer, and if the inflated numbers for cancer deaths are a product of an intuitive recoil or terror at the idea of cancer, then regulators should not use the unrealistically high monetary values.

For those who emphasize autonomy rather than welfare, perhaps this point does not amount to an objection to the use of WTP. If the goal is to respect people’s autonomy, regulators should defer to their judgments even if those judgments are mistaken. But if people show an especially high WTP because of a visceral reaction to cancer, or because of insufficiently thoughtful assessments of the stakes, then it is not clear that autonomy calls for following WTP. Government does not respect people’s autonomy if it follows their uninformed choices; this proposition raises doubts about government’s use of uninformed WTP. To be least controversial, WTP numbers would reflect informed rather than reflexive judgments about the nature of the harms involved.

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107. See Sunstein, *supra* note 8, at 248 (“WTP will be a poor proxy for welfare in cases in which we have good reason to suppose that underestimation or overestimation is likely. Of course government officials should be reluctant to second-guess citizens, but in some cases, the second-guessing is well justified.”).

*B. Persons*

Even when risks are identical, people are heterogeneous in their values and their preferences. The \$6.1 million itself is the median figure—it is the median of a set of means. But everyone agrees that in workplaces and elsewhere, individual WTP is highly variable. Some of the variability stems from different degrees of aversion to different risks. Some people are especially concerned to avoid the dangers associated with pesticides, whereas others focus on the risks of air travel. Some of these differences are a product of beliefs about existing risk levels and others of tastes and values. So too, people with high levels of background risk should be expected to be willing to pay less to avoid an additional risk of 1/100,000 than those with low levels of background risk. If, for example, a relevant population faces thirty annual mortality risks of 1/10,000 or higher, it should be expected to show a lower VSL with respect to a new risk of 1/100,000 than a population whose background risks are less serious.<sup>108</sup> The difference between the VSL of people in wealthy nations and that of people in poor nations, taken up in Part IV, is partly a product of the fact that the latter group generally faces far higher background risks.

It is likely that WTP varies with respect to age as well. It is reasonable to predict that other things being equal, older people will show a lower WTP and hence a lower VSL, simply because they have fewer years left. One study, for example, finds that the VSL of a forty-eight-year-old is 10 percent lower than that of a thirty-six-year-old; another finds that people under forty-five have a VSL twenty times higher than people over sixty-five.<sup>109</sup> The most careful analysis suggests that VSL peaks around age thirty, stays constant for about a decade, but declines from that point, so much so that the VSL for a sixty-year-old is approximately half of that of a person between thirty and forty.<sup>110</sup> These findings raise particular conundrums in the case of people under eighteen; how should government proceed if the VSL

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108. See Louis R. Eeckhoudt & James K. Hammitt, *Background Risks and the Value of a Statistical Life*, 23 J. RISK & UNCERTAINTY 261, 264–65 (2001) (illustrating that VSL decreases as the aggregate risk of a population increases).

109. See Viscusi & Aldy, *supra* note 10, at 50–51. But see Sunstein, *supra* note 8, at 227 (hypothesizing that older people may be willing to pay more than younger people to eliminate risk, giving older people a higher VSL).

110. See ALDY & VISCUSI, *supra* note 15, at 42 (calculating a VSL of \$5.76 million for people between twenty-eight and thirty-two years of age, \$4.83 million for people between thirty-eight and forty-two years of age, and \$2.51 million for people between fifty-eight and sixty-two years of age).

for those between infancy and fifteen years of age is low, simply because they have little or no money? It is implausible to use a tiny VSL for them, but what number should be used, and why? Little progress has been made on this question,<sup>111</sup> with the government using its ordinary, uniform number for children as for everyone else.<sup>112</sup> But if the vexing case of valuing children is put to one side, then the prevailing theory suggests a lower VSL for those in the last stages of life than for those who have many decades to live—and this difference ought to be reflected in regulatory policy.<sup>113</sup>

Along the same lines, many analysts suggest that regulatory policy should focus not on the value of statistical lives but on the value of statistical life-years (VSLY).<sup>114</sup> Suppose that they are right. If so, then the statistical lives of young people are likely to be worth more than the statistical lives of older people. The government's interest in focusing on VSLY led to widespread public objections to what, under one proposal, would seem to be a "senior death discount." That discount would have valued someone over seventy as "worth" \$.62 on the dollar.<sup>115</sup> But assuming that people over seventy are willing to pay about 62 percent, on average, of what younger people are willing to pay, the theory that underlies current practice justifies exactly this disparity. If the theory is right (a question to which I will turn<sup>116</sup>), then a disparity between older people and younger people makes perfect sense to the extent that the WTP figures justify it. Note in particular that if each person has a presumptive right to a life of decent length, then the use of the life-

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111. For an overview that turns out to be highly tentative and indeterminate, see generally ENVTL. PROT. AGENCY, CHILDREN'S HEALTH VALUATION HANDBOOK (2003). For discussion, see Eric A. Posner & Cass R. Sunstein, *Dollars and Death*, 72 U. CHI. L. REV. 537 (2005).

112. See ENVTL. PROT. AGENCY, *supra* note 111, at 3–12 ("[T]here is not sufficient support in the economics literature for making adjustments to the existing estimates to account for the impact of age (including children). . . ." (citing ENVTL. PROT. AGENCY, GUIDELINES FOR PREPARING ECONOMIC ANALYSES (2000))).

113. See Sunstein, *supra* note 8, at 206–08 (arguing that agencies should use VSLY when analyzing the costs and benefits of a proposed regulation, to take into account that older people have fewer life-years remaining).

114. *Id.* at 206; see, e.g., Richard Zeckhauser & Donald Shepard, *Where Now for Saving Lives?*, 40 LAW & CONTEMP. PROBS. 5, 11–15 (Autumn 1976) (measuring utility in terms of "quality-adjusted life years").

115. See Sunstein, *supra* note 8, at 206–08 (discussing the EPA's proposal to vary VSL based on age by setting the VSL for those under seventy at \$3.7 million and the VSL for those seventy and older at \$2.3 million).

116. See *infra* Part III.

years approach has a great deal of appeal, because it is likely to lead to special efforts to ensure that everyone enjoys that right.

Even more fundamentally, those with little to spare will show a far lower VSL than those who have plenty. WTP depends on ability to pay, and when ability to pay is low, WTP will be low as well, holding preferences constant. For this reason the VSL of people with an annual income of \$50,000 will be lower than that of people with an annual income of \$150,000. People in the former category might be willing to pay no more than \$25 to reduce a risk of 1/100,000, whereas people in the latter group might be willing to pay as much as \$100. If so, government should not require everyone to pay \$100; its decision to do so would harm those unwilling to pay that amount.<sup>117</sup> A uniform VSL, of the sort that government now uses, threatens to “overprotect” the poor, in a way that might well be harmful to them. At the same time, the uniform VSL threatens to underprotect the wealthy, in a way that is highly likely to be harmful to them.<sup>118</sup>

As a simple matter of fact, it would be expected that unionized workers would receive more compensation for incurring risks—and studies almost always show a higher VSL for unionized workers, with amounts as high as \$12.3 million, \$18.1 million, and even \$44.2 million.<sup>119</sup> Large differences across nations would also be expected, with VSL being higher in rich countries than in poor ones. And in fact, studies find a VSL as low as \$200,000 for Taiwan, \$500,000 for South Korea, and \$1.2 million for India—but \$21.7 million for Canada and \$19 million for Australia.<sup>120</sup> Consider, for purposes of illustration, the following table:<sup>121</sup>

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117. I am assuming adequate information and unbounded rationality. See *infra* text accompanying note 158.

118. Compare this with the EPA's explicit and unexplained refusal to consider differences “in age, health status, socioeconomic status, gender or other characteristic of the adult population.” National Emission Standards for Hazardous Air Pollutants for Industrial/Commercial/Institutional Boilers and Process Heaters, 68 Fed. Reg. 1660, 1695 (proposed Jan. 13, 2003) (to be codified at 40 C.F.R. pt. 63).

119. Viscusi & Aldy, *supra* note 10, at 45.

120. *Id.* at 27–28.

121. See *id.*

TABLE 3: VSL ACROSS NATIONS

<i>Nation and Year of Study</i>	<i>VSL (in 2000 US\$)</i>
Taiwan (1997)	.2-.9 million
South Korea (1993)	.8 million
India (1996/97)	1.2-1.5 million
Hong Kong (1998)	1.7 million
Canada (1989)	3.9-4.7 million
Switzerland (2001)	6.3-8.6 million
Japan (1991)	9.7 million
Australia (1997)	11.3-19.1 million
United Kingdom (2000)	19.9 million

It would follow that within the United States, wealthy populations would show a higher VSL than poorer populations. If a program is designed to combat health risks in wealthy suburbs, the VSL should be above the population-wide median; if the protected population is mostly in poor areas, the VSL should be below this median. Currently agencies pay no attention to this possibility in undertaking cost-benefit analysis.<sup>122</sup>

What about the more controversial categories of race and gender? Recent studies show significant differences. Using workplace data from 1996 to 1998, Professors Leeth and Ruser find that women's VSL ranges from \$8.1 million to \$10.2 million, whereas men's VSL is less than half that amount, ranging from \$2.6 million to \$4.7 million.<sup>123</sup> Leeth and Ruser find that Hispanic males show a slightly higher VSL than white males (\$5 million compared to \$3.4 million).<sup>124</sup> Most strikingly, African Americans receive no compensation for workplace risks, producing a VSL of zero.<sup>125</sup> Using workplace data from 1992 through 1997, Professor Viscusi also finds a significant disparity across racial lines, though his numbers are quite

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122. See Adler & Posner, *supra* note 5, at 1136-39 (arguing that the failure to take into account the differences in marginal utility between wealthy and poor people distorts cost-benefit analysis).

123. Leeth & Ruser, *supra* note 19, at 266.

124. *Id.* at 270.

125. See *id.* at 275 (concluding that fatal injury risk compensation for black males is negative but insignificant).

different from those found by Leeth and Ruser.<sup>126</sup> In Viscusi's study, the VSL is highest for white males and lowest for African-American males, with white and African-American females falling between the poles. More particularly, Viscusi finds that the overall white VSL is \$15 million, whereas the overall African-American VSL is \$7.2 million.<sup>127</sup> For white females, the overall VSL is \$9.4 million, compared to \$18.8 million for white males; for African-American females, the overall VSL is \$6.9 million, compared to \$5.9 million for African-American males.<sup>128</sup> Another study by Viscusi finds a VSL of \$7 million for blue-collar males and \$8.5 million for blue-collar females.<sup>129</sup>

What accounts for these differences? It should be expected that whites as a class will show a higher WTP and hence VSL than African Americans as a class. Simply because whites are wealthier, their WTP will be higher too. Might the same be expected within job categories? Perhaps the answer is yes, if past or present discrimination, or different starting points, produce racial disparities in compensation for risk within similar jobs. The precise causes and levels of the disparities are unclear, and the differences between Professors Leeth and Ruser on the one hand and Professor Viscusi on the other remain a puzzle. There is no *a priori* reason to think that men or women would show a higher VSL. If the relevant group of women is wealthier, then its WTP should be higher too. And if women are more averse to mortality risks than men, they will show a higher WTP, just because they will demand a higher premium. For my purposes, the central point is that demographic differences in VSL are entirely to be expected, and they are found in both studies.

### C. Theory and Practice

If the foregoing points are put together, it is apparent that there is not one VSL, but an exceptionally large number of VSLs. In fact each of us has not one VSL but a number of them, targeted to each risk that each of us faces. A policy that truly tracked WTP, and based VSL on WTP, would seek to provide all people with the level of protection for which they are willing to pay to reduce each risk.

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126. See Viscusi, *supra* note 16, at 252 (calculating fatality risk estimates and implicit VSL by race, sex, and income category).

127. *Id.*

128. *Id.*

129. Viscusi, *supra* note 55, at 39.

Tracking WTP is the goal that underlies current practice; and apart from questions of administrability, it calls for a maximum level of individuation.

1. *A Thought Experiment.* As a thought experiment, suppose that an all-knowing regulator could costlessly determine each person's WTP for each statistical risk that he faces—and perfectly match the level of regulatory protection to that WTP. In these circumstances, the regulator should give all people no more and no less than their WTP for each risk that they face. (In cases in which people's WTP was low because of poverty, they might be subsidized; but they would not be forced to purchase goods for an amount in excess of their WTP. I will return to this point,<sup>130</sup> but subsidies are not my topic here.) Under this approach, regulatory benefits would be treated the same as every other commodity that is traded on markets, including safety itself. Of course most people face extremely serious problems in dealing with risk, stemming both from an absence of information and from bounded rationality.<sup>131</sup> The all-knowing regulator would overcome these problems and provide people with what they would want if they did not suffer from them.

If agencies could do this, then the current theory would be perfectly implemented. It would follow that with full individuation, overall WTP would be lower for poor people than for wealthy people, for African Americans than for whites, and (possibly) for men than for women. But, under this thought experiment, government would not discriminate against groups; for example, it would neither decide on high VSLs for programs predominantly benefiting whites nor decide on low VSLs for programs predominantly benefiting African Americans. The difference would be a product of aggregation of fully individual VSLs—aggregation of the kind that most conventional markets, including those for automobiles and consumer goods, now provide. Recall that the use of WTP is justified because of its connection with welfare and individual autonomy. If so, then fully individual VSLs are justified on those same grounds.

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130. See *infra* text accompanying notes 148–49.

131. See David A. Strauss, *Why Was Lochner Wrong?*, 70 U. CHI. L. REV. 373, 384 (2003). See generally Christine Jolls et al., *A Behavioral Approach to Law and Economics*, 50 STAN L. REV. 1471, 1518–20 (1998) (arguing that despite adequate information consumers sometimes do not make well-informed choices because of their inability to process the information).

Of course there are two practical problems with taking the thought experiment seriously. The first is that agencies do not know the WTP of every individual, and as a practical matter, it is not possible to find out. The second problem is that regulatory benefits are often collective goods—goods that cannot feasibly be provided to one without also being provided to many. In the context of air pollution, for example, it is not possible to provide cleaner air for some without providing cleaner air for many or all. In regulating air pollution and water pollution, individuation is simply not an option.

These problems are fatal objections to *full* individuation. But they are not fatal objections to *more* individuation. At a minimum, agencies should be encouraged to take account of existing research in their sensitivity analyses, which would result (for example) in increased “upper bound” estimates for cancer risks.<sup>132</sup> In addition, disparities in VSL findings might be mapped onto different agency estimates, producing reasonable rather than arbitrary differences in VSL across agencies. If, for example, the risks of death from workplace accidents produce a lower number than the risks of death from consumer products, then the Occupational Safety and Health Administration should use a lower VSL than the Consumer Products Safety Commission. It is easy to imagine a research program in which the Office of Information and Regulatory Affairs would attempt to elicit far more information on VSL across different risks. A movement in this direction need not raise troubling ethical questions.

It would be far more controversial to suggest that agencies should adopt different VSLs depending on whether the affected population is especially wealthy or especially poor. But at the very least, agencies should adjust VSL to changes in national wealth over time, producing a higher amount than would result from inflation adjustments alone.<sup>133</sup> Or suppose, for example, that a regulation is designed to protect migrant farmworkers, expected to show a low VSL. Current studies in fact estimate the relationship between income and WTP,<sup>134</sup> allowing agencies to make suitable adjustments to their VSLs. And when the population is relatively wealthy, the agency might adopt a higher VSL. For present purposes, I am

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132. See *supra* note 74 (discussing the sensitivity analysis for cancer risks from arsenic).

133. Cf. Sunstein, *supra* note 54, at 2284–85 (discussing the rationale behind adjusting VSL for increases in national wealth).

134. See Viscusi & Aldy, *supra* note 10, at 36–43 (using a metanalysis of U.S. and international VSLs to determine the relationship between income and WTP).

suggesting only that an approach of this kind is indicated by the theory that government now uses. I turn in Part III to the larger questions that such an approach would make it necessary to answer.

2. *Optimal Individuation: An Intermediate Approach.* The larger question is simple: What is the optimal level of individuation with respect to the value of life? The answer depends in part on how much is known. Even in markets, individuals are not usually asked, or charged, their particular WTP. In real estate markets, negotiation between individuals is the usual practice. But for ordinary consumer goods—cereal, soap, casebooks, subscriptions to law reviews—a standard price emerges from the forces of supply and demand. It seems clear that a uniform VSL, cutting across domains in which those forces almost certainly establish disparate amounts, fits poorly with the theory that currently underlies government practice. It is also clear that full individuation is not feasible. The appropriate approach depends on two familiar variables: the costs of decisions and the costs of errors. In the early years of cost-benefit analysis, a uniform number was probably the best that agencies could do. As better information emerges about different VSLs across risks and persons, the use of a uniform number will be increasingly difficult to support. If those differences are substantial, the argument for further differentiation will be strengthened. A uniform number might be seen as a plausible “first-generation” response to the problems posed by cost-benefit analysis. The second generation is now well underway, and hence finer distinctions will be increasingly hard to resist.

3. *Administrative Law.* How would the use of more individuated VSLs bear on the legality of agency action? Courts have started to develop principles by which to review agency decisions about how to assess the costs and benefits of regulation.<sup>135</sup> Some statutes explicitly require agencies to balance costs against benefits, and under such statutes an agency’s choices about valuation might be

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135. The leading case is *Corrosion Proof Fittings v. EPA*, 947 F.2d 1201 (5th Cir. 1991). There, the Fifth Circuit explained: “[T]he proper course . . . is to consider each regulatory option, beginning with the least burdensome, and the costs and benefits of regulation under each option. . . . Without doing this it is impossible . . . to know that none of these alternatives was less burdensome than the ban . . . chosen by the agency.” *Id.* at 1217 (citation omitted); see also *Am. Dental Ass’n v. Martin*, 984 F.2d 823, 831 (7th Cir. 1993) (holding that the court’s role is not to evaluate the quality, necessity, or cost-benefit rationale of an agency regulation, but “merely to patrol the boundary of reasonableness”).

challenged as unreasonable or arbitrary.<sup>136</sup> If an agency used a VSL of \$200,000, it would almost certainly be assigning an arbitrarily and hence unlawfully low monetary value; if it used a VSL of \$40 million, its selection would be arbitrarily high.<sup>137</sup> In all cases agencies are required to produce a reasonable explanation for why they have proceeded one way rather than another.<sup>138</sup>

In view of the arguments made thus far, it is easy to imagine legal challenges to agency decisions. Suppose that the EPA continues to use the \$6.1 million VSL based on workplace studies. The agency's decision would be vulnerable on several grounds. First, it might be too low in light of the growth in national income. Second, it would fail to account for evidence that pollution risks, especially if cancer is involved, produce a higher VSL than workplace risks. Third, it would not, on the facts stated, come to terms with the possibility that the protected group might be wealthier or poorer than the group involved in the workplace studies. All of these challenges are plausible under existing law. As new and better data emerge, they become stronger still. It is certainly possible that a decade from now, the use of a uniform figure will seem obtuse, even indefensible.

Is there anything that agencies might say in defense of a uniform VSL? They might urge that the existing evidence is too ambiguous and contestable to justify a change in current practice. Most studies based on more recent data find a VSL in the range of \$6.1 million.<sup>139</sup> With respect to cancer, the EPA's Science Advisory Board (SAB) rejected an upward revision for especially dread illnesses, finding that the existing literature did not justify any such revision;<sup>140</sup> and some

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136. See, e.g., 15 U.S.C. § 2605(c) (2000) (requiring cost-benefit analysis of regulations of chemical substances or mixtures under the Toxic Substances Control Act).

137. This is an implication of *Corrosion Proof Fittings*, 947 F.2d at 1223, in which the Fifth Circuit found an EPA regulation costing \$23.7 million and saving one-third of a life unreasonable.

138. See *id.* at 1220–22 (holding that the EPA must provide a “reasonable basis” for a proffered regulation).

139. See, e.g., Leeth & Ruser, *supra* note 19, at 265–67 (finding a VSL slightly lower than previous studies' findings of \$4.1 million to \$9.6 million).

140. See ENVTL. PROT. AGENCY, AN SAB REPORT ON EPA'S WHITE PAPER VALUING THE BENEFITS OF FATAL CANCER RISK REDUCTION 5–6 (2000) (finding that “existing studies provide little reliable information as to the magnitude of [the dread premium associated with cancer]” and that, “until better information becomes available, it is best not to assign such a premium”), available at <http://www.epa.gov/science1/pdf/eeacf013.pdf>.

evidence directly supports the view of the SAB.<sup>141</sup> To be sure, it is more than plausible to think that VSL is wealth-dependent; but the EPA might urge that a uniform number is preferable on moral and distributive grounds and is not greatly out of line with existing evidence. In any case, a single number might have the advantage of easy administrability—and produce results that in general would be the same as those produced by imaginable variations. Most of the time, the agency's choice will not be affected if it selects a VSL of \$3.5 million or \$10 million; in such situations, a uniform number seems acceptable.

In many cases, I believe that these responses are unconvincing as a matter of policy. But in light of the properly limited role of courts in the oversight of agency action, they are convincing as a matter of law.<sup>142</sup> Courts should allow agencies considerable room to maneuver here, at least until the evidence against a uniform VSL becomes overwhelming. Permission to adopt such a number has an important corollary: an agency would be on firm legal ground if it attempted to make adjustments of the sort that I have suggested, even if current evidence does not unambiguously support those adjustments.

### III. WHY WTP? EASY CASES, HARD CASES

Thus far I have assumed that the theory behind current practice is straightforward—that it depends on an empirical elicitation of people's WTP as the foundation for VSL. If the assumption is correct, then a high degree of individuation is justified. But perhaps the assumption is false. Perhaps the prevailing theory does rely on elicited WTP but also adopts a norm in favor of the equality of persons (and possibly mortality risks as well).<sup>143</sup> Might that more complex theory be correct? In any case, what is the argument for embodying people's actual WTP in regulatory policy? Why should anyone care about actual WTP at all? Why should government conduct cost-benefit analysis with close reference to VSL?<sup>144</sup>

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141. See Viscusi & Aldy, *supra* note 10, at 57 (noting that the SAB's rejection of the "dread effect" of cancer is supported by the finding that contingent valuation estimates of cancer mortality risks are similar to estimates for accidental deaths).

142. See Sunstein, *supra* note 54, at 2292–93, for a more extended discussion.

143. Some support for this position can be found in the remarks of the EPA. See *supra* note 7.

144. These questions are pressed in ACKERMAN & HEINZERLING, *supra* note 9.

It is now time to attend to those issues in more detail. This Part begins by discussing what I call “easy cases,” in which the beneficiaries of regulation must pay for it. I suggest that in such cases, WTP is the appropriate foundation for VSL, because beneficiaries are hardly helped by being forced to pay for regulatory programs that they believe not to be in their interests. The major qualification here involves lack of information and bounded rationality. I then attempt to defend the claim that the analysis must be different in “hard cases,” in which beneficiaries pay for little or none of the cost of what they receive. But even in such cases, an optimal income tax, providing the right level of redistribution, would go a long way toward justifying a variable VSL. If a nation lacks an optimal income tax, and seeks greater redistribution, the use of a VSL that exceeds the WTP of the beneficiaries might produce desirable redistribution or be justified on welfare grounds. I outline the circumstances in which this might be so.

#### A. *Easy Cases*

For the sake of simplicity, assume a society in which people face multiple risks of 1/100,000, and in which every person is both adequately informed and willing to pay no more and no less than \$60 to eliminate each of those risks. Assume too that the cost of eliminating these 1/100,000 risks is widely variable, ranging from close to zero to many billions of dollars. Assume finally that the cost of eliminating any risk is borne entirely by those who benefit from risk elimination. Under that assumption, regulation imposes the equivalent of a user fee; for example, people’s water bills will entirely reflect the costs of a policy that eliminates a 1/100,000 risk of getting cancer from arsenic in drinking water. If the per-person cost is \$100, each water bill will be increased by exactly that amount.

1. *Welfare and Autonomy.* With these assumptions, the argument for using WTP to calculate VSL is straightforward. Regulation amounts to a forced exchange; it tells people that they must purchase certain benefits for a certain amount. Why should government force people to pay for things that they do not want? Begin with welfare. By hypothesis, a forced exchange on terms that people dislike will make them worse off. The case for using WTP depends on the simple idea that government should make Pareto superior moves (those making at least one person better off without making anyone worse off) and that it should avoid making Pareto inferior moves (those making at least one person worse off without

making anyone better off). At first glance, use of WTP, on the assumptions that I am making, seems hard to contest.<sup>145</sup>

For purposes of evaluating regulation, it does not matter if the existing distribution of income is unjust or if poor people are, in an intelligible sense, coerced to run certain risks. The remedy for unjust distributions, and for that form of coercion, is not to require people to buy regulatory benefits on terms that they find unacceptable. Suppose that people are willing to pay only \$60 to eliminate a 1/100,000 risk because they are not rich, and that if they had double their current wealth, they would be willing to pay \$120. Government does people no favors by forcing them to pay the amount that they would pay if they had more money.

I have suggested that for those who do not believe that regulatory decisions should be based on welfare, considerations of autonomy point in the same direction.<sup>146</sup> Those who refuse to pay a certain amount to eliminate a risk of 1/100,000 might want to use their resources for other things—medical care, children, food, recreation, entertainment, savings. If people are entitled to a kind of sovereignty over the conduct of their own lives, then they should be permitted to make such allocations as they choose. It is most standard to justify use of WTP on welfare grounds, but the same approach is at least equally defensible as a means of respecting the autonomy of persons.<sup>147</sup>

Consider how this argument works with respect to risks and persons. Suppose that people are willing to pay no more than \$50 to avoid a 1/100,000 risk of dying in a car crash, but that they are willing to pay up to \$100 to avoid a 1/100,000 risk of dying of cancer. If government uses a WTP for both risks of \$75, it will force people to

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145. I am putting to one side the possibility that WTP and hence VSL reflect competition for better relative position; if so, the VSL numbers, based on market evidence, are too low. *See* Frank & Sunstein, *supra* note 62, at 363 (finding that the failure to take into account concerns of relative position tends to underestimate risk-reduction benefits). A brief example: Suppose that workers are willing to pay only \$250 annually to eliminate a 1/10,000 risk; suppose too that worker well-being depends, in large part, on relative income, not absolute income; and suppose finally that workers would be willing to pay more than \$250 if all workers were simultaneously making the same payment, because in that event, relative position would not be compromised. Under these assumptions, the WTP numbers, based on market evidence or contingent valuation studies, underestimate VSL by a significant amount. *See id.* (estimating that the failure to take relative position into account could lead to undervaluing VSL by roughly 75 percent).

146. *See supra* text accompanying note 61.

147. *See* DWORKIN, *supra* note 61, at 449 (“[O]ne person—the person whose life it is—has a special responsibility for each life, and [by] virtue of that special responsibility he or she has a right to make the fundamental decisions that define, for him, what a successful life would be.”).

pay more than they want to avoid the risks associated with car crashes, and less than they want to avoid risks of cancer. Why should government do that? And if the argument is convincing in this example, it should apply in numerous cases in which WTP and hence VSL vary across risks.

With respect to persons, the argument is more controversial, above all because it treats poor people as less valuable (literally) than rich people. But at least at first glance, differences are appropriate here as well. The reason is not that poor people are less valuable than rich people. It is that no one, rich or poor, should be forced to pay more than he is willing to pay for the reduction of risks. This idea embodies a norm of equality. And if poor people are unwilling to pay much for the reduction of serious risks, the appropriate response is not a compelled purchase, but a subsidy. Suppose, for example, that each member of a group of relatively poor people, earning less than \$30,000 annually, is willing to pay only \$25 to eliminate a risk of 1/100,000—about one-half, suppose, of the nation's population-wide median of \$50. Should regulators require every citizen, including those in the relatively poor group, to pay \$50? Government should not force poor people to pay more than their WTP to eliminate statistical risks; forced exchanges of this kind do poor people no good and some harm.

It is tempting to justify a uniform VSL, one that does not distinguish between rich and poor, on the ground that it embodies a form of risk equity, treating every person as equal to every other person<sup>148</sup> and redistributing resources in the direction of poor people. But this is an error. A uniform VSL, taken from a population-wide median, does not produce redistribution toward the poor, any more than any other kind of forced exchange. Government does not require people to buy Volvos, even though Volvos would reduce statistical risks. If government required everyone to buy Volvos, it would not be producing desirable redistribution.<sup>149</sup> A uniform VSL

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148. See ACKERMAN & HEINZERLING, *supra* note 9, at 72 (arguing that varying VSL based on potential earnings is "difficult to reconcile with ideals of democracy and equal treatment under the law, let alone the sacredness of every human being").

149. Of course it is sometimes desirable for government to create "safety floors," for automobiles and other consumer goods, in part as a response to an absence of adequate information in the market. But such floors should not be seen as a redistributive tool, because they are not likely to produce good redistribution. Cf. Susan Rose-Ackerman, Comment, *Progressive Law and Economics—And the New Administrative Law*, 98 YALE L.J. 341, 354

has some of the same characteristics as a policy that requires people to buy Volvos. In principle, the government should force exchanges only on terms that people find acceptable, at least if it is genuinely concerned with their welfare.

Note, once again, that the argument for using WTP does not imply satisfaction with the existing distribution of wealth. The problem with forced exchanges is that they do nothing to alter existing distributions. In fact they make poor people worse off, requiring them to use their limited resources for something that they do not want to buy.

Does the easy case seem implausibly unrealistic? In many contexts, it certainly is. The costs of air pollution regulation, for example, are not fully borne by its beneficiaries.<sup>150</sup> But for workers' compensation regulation, for example, the situation is very different: with the enactment of workers' compensation programs, nonunionized workers faced a dollar-for-dollar wage reduction, corresponding almost perfectly to the expected value of the benefits that they received.<sup>151</sup> For drinking water regulation, something similar is involved. The cost of regulation is passed onto consumers in the form of higher water bills.<sup>152</sup> Hence the easy case finds a number of real-world analogues.

2. *Objections.* There are several possible objections to the use of WTP to calculate VSL. They point to some important qualifications, but none of them is a convincing refutation of the straightforward argument.

a. *Adaptive Preferences and "Miswanting."* The first objection emphasizes the possibility that people's preferences have adapted to existing opportunities, including deprivation.<sup>153</sup> Perhaps people show a

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(1988) (arguing that occupational health and safety regulations are not an effective method of redistribution).

150. Matthew E. Kahn, *The Beneficiaries of Clean Air Act Regulation*, REGULATION, Spring 2001, at 34, 35–38.

151. PRICE V. FISHBACK & SHAWN EVERETT KANTOR, A PRELUDE TO THE WELFARE STATE 69, app. D at 231–38 (2000).

152. See Sunstein, *supra* note 54, at 2271 (noting that a particular proposal to increase drinking water quality would have resulted in an annual increase of \$30 in the water bills for most households).

153. See JON ELSTER, SOUR GRAPES 109–10 (1983) (defining "adaptive preferences" as what happens when "people tend to adjust their aspirations to their possibilities"); Adler &

low WTP for environmental goods, including health improvements, simply because they have adjusted to environmental bads, including health risks. Perhaps people's WTP reflects an effort to reduce cognitive dissonance through the conclusion that risks are lower than they actually are.<sup>154</sup> To generalize, perhaps people suffer from a problem of "miswanting";<sup>155</sup> they want things that do not promote their welfare, and they do not want things that would promote their welfare. If this is so, then WTP loses much of its underlying justification; people's decisions do not actually promote their welfare,<sup>156</sup> and their autonomy, properly understood, may not require respect for their decisions, which may be nonautonomous. If government can be confident that people are not willing to pay for goods from which they would greatly benefit, perhaps government should abandon WTP.

In some contexts, this objection raises serious problems for neoclassical economics and for unambivalent enthusiasm for freedom of choice.<sup>157</sup> Autonomy is implicated in addition to welfare. Suppose that people do not want risk reduction because they believe risk to be inevitable, or because their preferences have adapted to dangerous and unfair conditions. If so, people's preferences do not reflect their autonomy. In other words, the idea of autonomy requires not merely

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Posner, *supra* note 5, at 1128–30 (hypothesizing, for example, that "people are not willing to pay for parks because they have adapted to a world without parks").

154. See generally GEORGE A. AKERLOF & WILLIAM T. DICKENS, *The Economic Consequences of Cognitive Dissonance*, in AN ECONOMIC THEORIST'S BOOK OF TALES 123 (1984) (analyzing the incorporation of the psychological theory of cognitive dissonance into economic models).

155. For an analysis and explanation of the idea of "miswanting," see Daniel T. Gilbert & Timothy D. Wilson, *Miswanting*, in FEELING AND THINKING: THE ROLE OF AFFECT IN SOCIAL COGNITION 178, 179 (Joseph P. Forgas ed., 2000), who explain that:

Although we tend to think of unhappiness as something that happens to us when we do not get what we want, much unhappiness . . . has less to do with not getting what we want, and more to do with not wanting what we like. When wanting and liking are uncoordinated in this way we may say that person has *miswanted*.

*Id.* See generally Timothy D. Wilson & Daniel T. Gilbert, *Affective Forecasting*, in 35 ADVANCES IN EXPERIMENTAL SOCIAL PSYCHOLOGY 345 (Mark P. Zanna ed., 2003) (analyzing people's ability to accurately predict their own feelings).

156. For a discussion on how preferences influence judgments, see Daniel Kahneman et al., *Back to Bentham? Explorations of Experienced Utility*, 112 Q.J. ECON. 375, 379–88 (1997) (arguing that utility's impact on human behavior can be understood better and researched more effectively by analyzing the normative idea of "total utility" as the discrete concepts of "experienced utility" and "decisional utility").

157. See *supra* note 156; George Lowenstein & David Schkade, *Wouldn't It Be Nice?: Predicting Future Feelings*, in WELL-BEING: THE FOUNDATIONS OF HEDONIC PSYCHOLOGY 85 (Daniel Kahneman et al. eds., 1999).

respect for whatever preferences people happen to have, but also social conditions that allow preferences to be developed in a way that does not reflect coercion or injustice. With respect to some risks, the relevant preferences are nonautonomous; consider the fact that many women face a risk of male violence under circumstances in which they believe that little can be done and hence adapt.

In the context of ordinary regulatory policy, however, this objection has more theoretical than practical interest. Typically regulation involves the reduction of low-level mortality risks (say, 1/50,000). Much of the time, there is no reason to believe that the use of informed WTP (say, \$100) is a product of adaptive preferences. When people's WTP does appear to result from adaptive preferences, however, the judgment about the easy cases must be revised.

*b. Inadequate Information and Bounded Rationality.* A closely related objection would point to an absence of information and to bounded rationality. As I have stressed throughout, people have difficulty dealing with low-probability events.<sup>158</sup> If people are not aware of what they might be gaining by regulation, their WTP can be too low. Perhaps the availability heuristic will lead people to underestimate the risk. If people cannot recall a case in which some activity produced illness or death, they may conclude that the risk is trivial even if it is not. Or perhaps the same heuristic, and probability neglect, will lead people to exaggerate risks, producing a WTP that is wildly inflated in light of reality. And if people are unable to understand the meaning of ideas like "one in fifty thousand," or to respond rationally to such ideas, then there are serious problems with relying on WTP.

It is also possible that people's WTP reflects excessive discounting of future health benefits. If workers are ignoring the future, or applying an implausibly high discount rate, then there is a good argument for setting aside their WTP. In the context of global warming, for example, the temporally distant nature of the harm might well lead to insufficient concern for a potentially catastrophic risk. The same is true for less dramatic risks that people face in their daily lives. Young smokers, for example, probably give too little attention to the health harms caused by smoking. Those who choose a

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158. See, e.g., Jolls et al., *supra* note 131, at 1519 ("People sometimes . . . underestimate the likelihood of low-probability or low-salience events because these threats simply do not make it onto people's 'radar screens.'").

poor diet and little exercise almost certainly fail to consider the long-term effects of their behavior. Self-control problems are an important part of bounded rationality. If a low WTP shows a failure to give adequate attention to the future, then there is reason not to use WTP.

In many cases, however, WTP is a result of adequate information and bounded rationality is not leading people to err. If so, appropriate adjustments should be made to WTP, and the VSL that emerges from WTP should be corrected.

c. *Rights.* A quite different objection would point to people's rights. Perhaps people have a right not to be subjected to risks of a certain magnitude, and the use of WTP will violate this right. It seems fully reasonable to say that whatever their WTP, human beings should have a right not to be subject to risks above a particular level. Imagine, for example, that poor people live in a place where they face a 1/20 annual risk of dying from water pollution; it makes sense to say that the government should reduce that risk even if people are willing to pay only \$1 to eliminate it and the per-person cost is \$100.<sup>159</sup>

As an abstract claim about people's rights, the objection is entirely correct. Something has gone badly wrong if people are exposed to serious risks and their WTP prevents them, and is invoked to prevent their government, from doing anything in response. It would be foolish to suggest that WTP is determinative of the appropriate use of government subsidies; a redistributive policy does not track people's WTP. (Would it make sense to say that government would give poor people a check for \$100 only if they were willing to pay \$100 for the check?) And in many cases people are subject to risks whose magnitude is indeed a violation of rights. But this point has little force against the particular argument that I am making.

The initial problem with this objection is that in the cases under discussion, rights of this kind are usually not involved; I am speaking here of statistically small risks. Suppose that this initial response is unconvincing and that rights are indeed involved. If so, there is a still more fundamental response. When rights are involved, the proper response is not to force people to buy protection that they do not want, but to provide a subsidy that will give them the benefit for free or enable them to receive the benefit at what is, for them, an

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159. I bracket the possibility that rights are resource-dependent, and I simply assume here that risks above a certain level should count as violative of rights.

acceptable price.<sup>160</sup> Nothing here is meant to deny the possibility that government should provide certain goods via subsidy, or indeed that subjection to risks above a certain level is a violation of rights.<sup>161</sup> The question instead is one of regulation under the stated assumptions. So long as that is the question, use of WTP does not violate anyone's rights.

*d. Democracy versus Markets.* An independent objection would stress that people are citizens, not merely consumers; it would urge that regulatory choices be made after citizens have deliberated with one another about their preferences and values.<sup>162</sup> The argument against forced exchanges treats people as consumers; it sees their decisions about safety as the same as their decisions about all other commodities.<sup>163</sup> For some decisions, this approach is badly misconceived.<sup>164</sup> Our constitutional system is a deliberative democracy,<sup>165</sup> not a maximization machine, and many social judgments should be made by citizens engaged in deliberative discussion with one another rather than by aggregating the individual choices of consumers.<sup>166</sup>

Consider some examples:

- In the context of race and sex discrimination, sensible societies do not aggregate people's WTP. The level of

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160. I put to one side the question of whether people should be given in-kind benefits or instead lump sums.

161. There is a separate question, not addressed here, whether and when subjection to risks of harm (as opposed to actual harm) is itself a harm. See Matthew D. Adler, *Risk, Death and Harm: The Normative Foundations of Risk Regulation*, 87 MINN. L. REV. 1293, 1340–88 (2003) (reviewing arguments supporting and refuting the proposition that the risk of death is itself a harm that affects welfare).

162. See AMARTYA SEN, RATIONALITY AND FREEDOM 287 (2002) (noting that “discussions and exchange, and even political arguments, contribute to the formulation and revision of values”).

163. See Richard H. Pildes & Elizabeth S. Anderson, *Slingshot Arrows at Democracy: Social Choice Theory, Value Pluralism, and Democratic Politics*, 90 COLUM. L. REV. 2121, 2176 (1990) (“In the highly differentiated world of the modern liberal state, the same person may have distinct interests in her role as consumer from those in her role as worker, or as citizen, or as a parent, or as member of a religious community.”); see generally ELIZABETH ANDERSON, VALUE IN ETHICS AND ECONOMICS (1993).

164. Pildes & Anderson, *supra* note 163, at 2176 (“Individuals are better understood as approaching many choices not from a unitary, fixed perspective, but from several different perspectives that pull them in different directions.”).

165. See generally JOSEPH M. BESSETTE, THE MILD VOICE OF REASON: DELIBERATIVE DEMOCRACY AND AMERICAN NATIONAL GOVERNMENT (1994).

166. See the discussion of “government by discussion” in SEN, *supra* note 162, at 287–89.

permissible discrimination is not set by using market evidence or contingent valuation studies to see how much people would be willing to pay to discriminate (or to be free from discrimination). Even if discriminators would be willing to pay a lot to avoid associating with members of unpopular groups, such discrimination is banned. Through political processes, citizens have decided that certain forms of discrimination are illicit, whatever people's WTP.

- The prohibition against sexual harassment does not emerge from a governmental WTP. Many harassers would be willing to pay something, perhaps a great deal, for the privilege of harassing; in imaginable circumstances, the harassers' WTP might exceed their victims' WTP to prevent harassment. Nonetheless, harassment is forbidden, and WTP is irrelevant.
- The protection of endangered species is not chosen on the basis of aggregated WTP. Whether and when to protect members of endangered species is a moral question to be resolved through democratic discussion, not through exercises in consumer sovereignty. Some people may be willing to pay a significant amount to harm endangered species, at least if that harm is necessary to undertake development activities. Their WTP is not taken to be part of the legal assessment of what they are permitted to do.
- Laws that forbid cruelty to animals, and that impose affirmative duties of protection on human beings, stem not from WTP, but from a belief that moral commitments call for such laws. When laws require that animals be protected against suffering, it does not matter that those who are regulated (university laboratories, for example) may be willing to pay a significant amount to avoid the regulation. Of course the cost of the regulatory burden might play a role in deciding whether to impose it. But the underlying moral judgment is rooted in a belief in the avoidance of suffering that does not essentially turn on WTP.

Emphasizing the limits of any approach that takes "preferences" to be the foundation of regulatory policy, Professor Amartya Sen stresses that "discussions and exchange, and even political arguments, contribute to the formation and revision of values."<sup>167</sup> He urges that in

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167. *Id.* at 287.

the particular context of environmental protection, solutions require regulators “to go beyond looking only for the best reflection of given individual preferences, or the most acceptable procedures for choices based on those preferences.”<sup>168</sup>

Professor Sen’s claims are both fundamental and correct. They point to some serious limitations on the use of WTP. But it is important not to read such objections for more than they are worth. In trading off safety and health in their private lives, people do not have static values and preferences. Much of the time, human choices are a product of reflection, even if choosers are simply acting as consumers. Reflection and deliberation, including reflection and deliberation with other people, are hardly absent from the market domain. To be sure, moral questions should not be resolved by aggregating private WTP. Sometimes people’s preferences, even though backed by WTP, are morally off-limits, and policy should not take account of them. In addition, people are sometimes unwilling to pay a great deal for goods that have strong moral justifications; animal welfare is an example. In these circumstances, the market model is inapplicable and WTP reveals very little.

But what about the easy case? Do these arguments suggest that government should override individual choices about how much to spend to eliminate low-level risks, even when those choices are adequately informed? For environmental protection generally, it is indeed important to go beyond “the best reflection of given individual preferences.”<sup>169</sup> But this point does not mean that people should be required to pay \$100 to eliminate mortality risks of 1/100,000 when they are willing to pay only \$75. If people’s WTP reflects an absence of information or insufficient deliberation, then it is important for other people, in government and elsewhere, to draw attention to that fact. And in some cases, a low WTP might be overridden on the ground that it is rooted in errors, factual or otherwise. But these points should not be taken as a general objection to my conclusion about the easy case, or to suggest that government should force people to reduce statistical risks at an expense that they deem excessive.

Here is one way to understand the argument that I am making: The American system is a deliberative democracy, to be sure, but in

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168. *Id.* at 289 (emphasis omitted).

169. *Id.* (emphasis omitted).

this democracy, it is valuable for regulators to consider more fully individuated VSLs in deciding how to proceed, at least under the stated assumptions.

*e. Very Low Probabilities and Catastrophic Risks.* Suppose that everyone in the United States faces an annual death risk of  $1/10,000,000$ —and that this risk, if it comes to fruition, will kill every person in the country. The expected number of annual deaths is twenty-six,<sup>170</sup> which would produce expected annual costs in excess of \$158 million, assuming a VSL of \$6.1 million. But if the government attempted to elicit each individual's WTP to avoid a risk of  $1/10,000,000$ , it might well produce a number very close to zero. How much would you be willing to spend to avoid a risk of  $1/10,000,000$ ? If you say “nothing,” you might well be like most people. And if most people really are like that, the supposed risk of  $1/10,000,000$ , applicable to everyone in the United States, yields both twenty-six expected annual fatalities and expected annual costs very close to zero—an especially odd result in light of the fact that there is a  $1/10,000,000$  risk not simply that *each* American will die, but that *every* American will die.<sup>171</sup>

This result does seem anomalous. For one thing, is it really sensible to conclude that the prevention of twenty-six deaths is worth nothing, or close to it? An affirmative answer is suggested by a perspective that is fully based on people's WTP to avoid very low probability risks. But assigning a value near zero, for the prevention of dozens of deaths, seems quite implausible. In cases of this kind, there is a serious problem with using WTP to calculate the benefit of avoiding that risk.

This conclusion actually understates the problem. In the case at hand, the risk is potentially catastrophic. As I have said, if the  $1/10,000,000$  chance is realized, every American will be dead. Even if people show a WTP near zero to avoid a risk of that size, it does not seem right to think that the nation should spend almost nothing to prevent it.<sup>172</sup> The point has a general bearing on precautions against low probability risks of catastrophe: some degree of prevention

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170. Assuming a U.S. population of 260 million.

171. For a valuable discussion, see generally POSNER, *supra* note 78. See also Cass R. Sunstein, *Irreversible and Catastrophic*, CORNELL L. REV. (forthcoming 2006).

172. See *id.* at 168–69 (“[I]f the minute risk is of a ‘dreadful’ catastrophe, [people] may demand a very high price to bear it, however slight it is, in which event the value of life implied by their behavior may be astronomical.”).

should be undertaken even if WTP numbers do not justify it. Part of the problem with those numbers is that individual behavior will not reflect the “catastrophe premium” or “extermination premium” that would almost certainly emerge if it were possible to test for it. People may be unwilling to pay anything to avoid a risk of 1/100,000,000 that they themselves face; but if they were told that every person in the nation faced this risk, they might come up with a significantly higher figure. It would take the right question to produce the higher numbers. Another the problem is that WTP is not an adequate measure of social responses to catastrophes—in part because people are not familiar with making choices about risks of that sort.

In my view, this is a sound objection to the use of a low or near-zero VSL in the context of catastrophic risks, even if the WTP calculation would produce that VSL. As Judge Richard Posner shows,<sup>173</sup> this is an important point when government is considering how to respond to small risks of catastrophic harm. But notice that the objection has built-in limitations. It does not apply to the overwhelming number of cases in which VSL is used. In those cases, the risks in question are 1/10,000 to 1/100,000, and no large-scale catastrophe is at issue. Here, then, is a limitation on the use of WTP, but the domain of the objection is restricted.

*f. Third-Party Effects.* A final objection would point to effects on third parties. If outsiders would be adversely affected by the undervaluing of a particular risk, and if their welfare is not being considered, then the WTP calculus is seriously incomplete. This point demonstrates a general and badly neglected problem for WTP as it is currently used: agencies consider people’s WTP to eliminate statistical risks, without taking account of the fact that others—especially family members and close friends—would also be willing to pay something to eliminate those risks. John might be willing to pay \$25 to eliminate his own risk of 1/100,000, but his wife, Jane, might be willing to pay \$25 to eliminate John’s risk also. If regulators add the WTP, on John’s behalf, of John’s friends and relatives, the total WTP might soon exceed \$100. This is a real problem for existing uses of WTP.

But thus far the discussion has been assuming that there are no third-party effects. The argument for using WTP, on the stated assumptions, is that government should not force people to buy goods

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173. See *id.* at 196–98.

that are not worthwhile for them. At least at first glance, this argument seems sound with respect to statistical risks of the kind on which I am focusing.<sup>174</sup>

*B. Harder Cases: Autonomy, Kaldor-Hicks, and Welfare*

There is an obvious artificiality in the assumptions thus far. Most important, people do not always bear the full social costs of the regulatory benefits that they receive. Sometimes they pay only a fraction of those costs—or possibly nothing at all. When this is so, the normative analysis is much more complicated. In the context of air pollution regulation, for example, there is a complex set of distributional effects, and on balance, poor people, and members of minority communities, appear to be net gainers.<sup>175</sup> An efficiency analysis, based on WTP, might not produce an adequate account of the welfare effects of air pollution regulation. And even if it did, an account of welfare effects might not resolve the normative question, because the distributional gains are important to consider.<sup>176</sup> The difficulty is that a high VSL, one that exceeds what WTP studies show for poor people, may produce outcomes that are in the best interest of poor people, in the sense that the result is a welfare improvement for them.<sup>177</sup> And if poor people do not bear all of the costs of

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174. Note that the argument would not apply to risks faced by nonhuman animals; in that event, people's WTP could not tell the whole story.

175. See Kahn, *supra* note 150, at 37–38 (analyzing pollution and demographic data from California and finding that, under the Clean Air Act, “poorer, less educated populations have experienced a greater overall improvement in air quality between 1980 and 1998”).

176. The Office of Management and Budget has expressly recognized this point in its most recent guidelines governing regulatory impact analysis. See Office of Mgmt. & Budget, Draft 2003 Report to Congress on the Costs and Benefits of Federal Regulations, 68 Fed. Reg. 5492, 5517 (Feb. 3, 2003):

Those who bear the costs of a regulation and those who enjoy its benefits often are not the same people. . . . Your regulatory analysis should provide a separate description of distributional effects (i.e., how both benefits and costs are distributed among sub-populations of particular concern) so that decisionmakers can properly consider them along with the effects on economic efficiency.

177. For relevant discussion, see Christine Jolls, *Accommodation Mandates*, 53 STAN. L. REV. 223, 227–28, 255–61 (2000). Professor Jolls argues that accommodation mandates might produce desired redistributive gains whether or not they are efficient, and she supplies a detailed analysis of when those gains are most likely to occur. See *id.* at 250 (“Even if the value of the accommodation is less than its cost, the mandate may make disadvantaged workers better off because nondisadvantaged workers will bear some of the associated cost.”). At present, there is no parallel discussion for regulation of the sort that I am discussing here. My suggestion is that under imaginable assumptions, some regulation will be defensible on distributive grounds.

programs that benefit them, the autonomy argument for WTP is greatly reduced; they are enjoying a benefit (partly) for free, and it does not insult anyone's autonomy to give them a good on terms that they find acceptable. Note that these points do not bear directly on the question of whether VSL should vary across risks. But they do bear on the issue of varying VSL across persons, and in particular across disparities in income and wealth.

Suppose, for example, that beneficiaries of a proposed drinking water regulation are willing to pay only \$80 to eliminate a risk of 1/50,000. Assume, in addition, that the per-person cost of eliminating a 1/50,000 risk is \$100—but that for every dollar of that cost, the beneficiaries pay only \$.80. The remaining \$.20 might be paid by water companies themselves, in the form of reduced profits, or by employees of the water companies, in the form of reduced wages and fewer jobs. In this example, the costs of the regulation exceed the benefits: it is inefficient. But by hypothesis, the regulation makes its beneficiaries better off. If the WTP criterion is used, the fact that the monetized costs exceed the monetized benefits is decisive. But as a normative matter, the analysis here is far harder than in the easy cases. On what assumption should the WTP numbers be decisive?

The assumption must be that economic efficiency is the goal of government, at least in the context of regulation—that to know what to do, government should aggregate the benefits and costs of regulation, and act if and only if the benefits exceed the costs. When using the WTP numbers, government is acting as a maximization machine, aggregating all benefits and costs as measured by the WTP criterion. But this is a highly contestable understanding of what government should be doing. In fact it represents a shift from the relatively uncontroversial Pareto criterion, exemplified above, to a version of the far more controversial Kaldor-Hicks criterion,<sup>178</sup> which assesses policy by asking this question: Are the gainers winning more than the losers are losing? The Kaldor-Hicks criterion is sometimes described as potential Pareto superiority,<sup>179</sup> because it asks whether in principle, the winners could compensate the losers, and a surplus

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178. It is only a version of that criterion, because it is measuring welfare in monetary equivalents. A direct assessment of welfare, if it were possible, might justify the regulation in question on Kaldor-Hicks grounds.

179. See, e.g., RICHARD A. POSNER, *ECONOMIC ANALYSIS OF LAW* 13 (6th ed. 2003) ("The Kaldor-Hicks concept is also and suggestively called potential Pareto superiority: The winners could compensate the losers, whether or not they actually do.").

could be left over. The difficulty of course is that Pareto superiority is merely potential. Some people really are losing and others are gaining.

In these harder cases, the gainers are gaining less (in monetary terms) than the losers are losing—and hence the regulation is said to be unjustified. Under the assumptions that I have given, the regulation is indeed inefficient: its social cost is higher than its social benefit. But is the regulation undesirable? This is not at all clear. The first problem is that WTP is measuring gains and losses in monetary terms, rather than in welfare terms.<sup>180</sup> It is possible that those who gain, in the harder cases, gain more welfare than the losers lose; WTP is not dispositive on that question. The second problem is distributional. Suppose that in terms of overall welfare, the regulation is not desirable; it makes aggregate welfare lower rather than higher. But suppose too that those who benefit are less advantaged than those who lose. If, for example, those who are willing to pay \$80 are disproportionately poor, and those who pay the remainder are disproportionately wealthy, the regulation might plausibly be justified despite the welfare loss.

It is natural to respond here that, if redistribution is the goal, then it should be produced not through regulation but through the tax system, which is a more efficient way of transferring resources to people who need help.<sup>181</sup> I agree. But suppose that redistribution is not possible through the tax system. If so, then regulation in the harder cases cannot be ruled off-limits despite its inefficiency. The fact that a regulation is helpful to the most disadvantaged is not decisive in its favor. If it is trivially helpful, and if it inflicts huge costs on everyone else, little can be said for it. But everything depends on the magnitude of the relevant effects. A program that produced large gains for the least well-off would seem to be justified even if it imposed, in terms of WTP, slightly higher costs than benefits on balance.

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180. On the direct measurement of welfare, see generally Kahneman et al., *supra* note 156 (exploring various methods of measuring the utility of temporally extended outcomes).

181. See, e.g., Louis Kaplow & Steven Shavell, *Why the Legal System Is Less Efficient Than the Income Tax in Redistributing Income*, 23 J. LEGAL STUD. 667, 667 (1994) (“[R]edistribution through legal rules offers no advantage over redistribution through the income tax system and typically is less efficient.”); Steven Shavell, *A Note on Efficiency vs. Distributional Equity in Legal Rulemaking: Should Distributional Equity Matter Given Optimal Income Taxation?*, 71 AM. ECON. REV. PAPERS & PROC. 414, 414 (1981) (describing how an income tax can compensate for inefficient liability rules and redistribute income); David A. Weisbach, *Should*